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MASTER'S THESIS

Candidate's Name: Susan G. Polk

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Thesis Title: Nurse-Physician Perceptions of Collaborative Practice in Air Force Medical Treatment Facilities

On the recommendation of the candidate's Supervisory Committee, this thesis has been accepted by the Dean of Graduate Faculties and Research and the School of Graduate Studies in partial fulfillment of the requirements for the above indicated master's degree. This is to give notice that the final examination in defense of the thesis may now be conducted by the candidate's examining committee.

Date accepted: 7/15/97
Raoul A. MacGuinn
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Summary of Survey Findings

The first research question asked what the perceived level of collaborative practice in Air Force Medical Treatment Facilities was, as reported by active duty nurses and physicians. Significant differences were found between the two groups on the dependent variables of assertiveness and cooperativeness. Nurses, as a group, were found to be significantly more assertive and more cooperative than physicians. Results of the t-tests performed on the groups are summarized below.

Comparison of Group Scores of Assertiveness and Cooperativeness

Variable	Group	n	Mean	SD	t	p
Assertiveness	Nurse	163	34.2	8.8	4.12	<.001
	Physician	100	29.9	7.8		
Cooperativeness	Nurse	159	39.5	8.98	2.55	.013
	Physician	104	36.6	9.42		

The findings indicated that both nurses and physicians are currently in a state of compromise in their professional relationships with each other. Compromise is considered by the authorities in the literature to be a midway point to collaboration.

The second research question asked what influence did the demographics of rank, educational level, practice setting, type of facility, age, gender, position, and length of time on active duty have on the perception of collaborative practice. Pearson's Product

Moment Correlation was calculated for the dependent variables of assertiveness and cooperativeness and the independent variables of length of time on active duty, educational level, age, and rank. A significant positive correlation was noted between assertiveness and educational level ($r = .2616$; $N = 260$; $p < .001$). Significant positive correlations were also found between cooperativeness and length of time on active duty ($r = .1708$; $N = 253$; $p = .006$), and cooperativeness and education ($r = .1661$; $N = 260$; $p = .007$).

A series of ANOVAs revealed a significant difference in the assertiveness scores of nurses based on areas of practice and position. Nurses in managed care, emergency services, critical care, obstetrics, and surgery were all significantly more assertive than operating room nurses ($F = 2.164$; $df = 10, 152$; $p = .0229$). Additionally, nurses occupying an administrative position were significantly more assertive than staff nurses, nurses in health promotions, nurse supervisors, nurse managers, and nurses occupying other positions ($F = 2.523$; $df = 6, 155$; $p = .0233$). ANOVAs run on the physician group showed no significant differences in assertiveness or cooperativeness associated with either physicians' areas of practice or their positions.

T-tests conducted on the independent variable of gender and dependent variables of assertiveness and cooperativeness revealed a significant difference between males and females across the groups. No significant difference was found between male and female nurses or male and female physicians for either of the dependent variables. However, when gender was examined in relation to the dependent variables, regardless of their

profession, women ($n = 141$) were significantly more assertive ($M = 33.7$, $sd = 8.9$, $t = 2.47$, $p = .014$) than men ($M = 31.1$, $sd = 8.2$, $n = 120$) and significantly more cooperative ($M = 39.3$, $sd = 8.9$, $n = 138$, $t = -2.94$, $df = 259$, $p = .004$) than their male colleagues ($M = 36.6$, $sd = 9.4$, $n = 123$). A two way analysis of variance used to examine the relationship between type of training (nursing versus medicine) and gender revealed no significant interaction. No other significant findings were discovered.

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NURSE-PHYSICIAN PERCEPTIONS OF COLLABORATIVE PRACTICE
IN AIR FORCE MEDICAL TREATMENT FACILITIES

Susan Gayle Polk, Master of Science in Nursing

University of Missouri-Kansas City, 1997

ABSTRACT

Collaborative practice has been shown to improve the satisfaction of patients/families, nurses, and physicians, produce significant cost savings, and improved the quality of care in civilian health care organizations. This study sought to determine the level of collaborative practice in Air Force Medical Treatment Facilities, as perceived by active duty nurses and physicians, and examine the impact of certain demographic characteristics on those perceptions.

Fishbein's Theory of Reasoned Action (Azjen & Fishbein, 1980) provided the theoretical framework for this study. The theory allowed the level of collaborative behavior in Air Force Medical Treatment Facilities to be determined by the participants' responses to the Collaborative Practice Scales developed by Weiss and Davis (1985) and modified by Jones (1991).

The surveys, which measured the dependent variables of cooperativeness and assertiveness, were distributed at 17 Air Force health care facilities to 313 active duty Air

Force nurses and 313 active duty Air Force physicians. A response rate of 45% was analyzed for the study.

The study found a significant difference between the groups on both of the dependent variables. Nurses scored higher on assertiveness ($M = 34.2$, $sd = 8.8$, $t = 4.12$, $p < .001$) and cooperativeness ($M = 39.5$, $sd = 8.98$, $t = 2.55$, $p = .013$) than did the physicians ($M = 29.9$, $sd = 7.8$; $M = 36.6$, $sd = 9$).

This study examines the results of the surveys, compares the findings to previously published works, and assessing the implications for the Air Force Medical Service.

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NURSE-PHYSICIAN PERCEPTIONS OF COLLABORATIVE PRACTICE
IN AIR FORCE MEDICAL TREATMENT FACILITIES

A THESIS IN
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the requirements for the degree

MASTER OF SCIENCE

by
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Kansas City, Missouri
1997

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ABSTRACT

Collaborative practice has been shown to improve the satisfaction of patients/families, nurses, and physicians in civilian health care organizations. The civilian facilities with collaborative practice environments have also realized significant cost savings and improved quality of care. This study sought to determine the level of collaborative practice in Air Force Medical Treatment Facilities, as perceived by active duty nurses and physicians, and examine the impact of certain demographic characteristics on those perceptions.

Fishbein's Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980) which asserts that the accurate measurement of an individual's intention to behave in a particular manner is the direct precursor to that behavior, provided the theoretical framework for this study. The Theory of Reasoned Action allowed the level of collaborative behavior in Air Force Medical Treatment Facilities to be determined by the participants' responses to the Collaborative Practice Scales developed by Weiss and Davis (1985) and modified by Jones (1991).

The surveys, which measured the dependent variables of cooperativeness and assertiveness, were distributed at 17 Air Force health care facilities to 313 active duty Air Force nurses and 313 active duty Air Force physicians. A response rate of 45% was analyzed for the study.

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This study examines the results of the surveys, comparing the findings to previously published works, and assessing the implications for the Air Force Medical Service. Suggestions for further research are also presented.

This abstract of 347 words is approved as to form and content.



Steve Krantz, Ph.D.

School of Nursing

The undersigned, appointed by the Dean of the School of Nursing, have examined a thesis titled Nurse-Physician Perceptions of Collaborative Practice in Air Force Medical Treatment Facilities, presented by Susan Gayle Polk, candidate for the Master of Science in Nursing, and hereby certify that in their opinion it is worthy of acceptance.

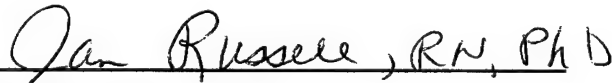


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CHAPTER 1

INTRODUCTION

This thesis describes the state of collaborative practice in the Air Force Medical Service (AFMS). Collaborative practice is defined as ". . . interactions between nurse and physician that enable the knowledge and skills of both professions to synergistically influence the patient care being provided" (Weiss & Davis, 1985, p. 299).

Civilian health care organizations have documented improvements in the satisfaction levels of patients/families, physicians, and nurses in facilities where collaborative practice has been initiated (Baggs & Schmitt, 1988; Chimner & Easterling, 1993; Lyons, Reinke, Sutherland, & Zelenkov, 1992; Tennaro, 1993). Significant increases in cost effectiveness and quality care have also been realized in these civilian institutions (Campbell et al., 1995; Knaus, Draper, Wagner, & Zimmerman, 1986; Koerner & Armstrong, 1984; Tennaro, 1993; Zander, 1988).

There is no evidence in the literature of an evaluation of the state of collaborative practice in the AFMS. If the Air Force (AF) is to consider pursuing this approach to the delivery of patient care, it is imperative that the current state of collaboration be defined.

This descriptive study describes the current level of collaborative practice in AF Medical Treatment Facilities (MTFs), as perceived by active duty nurses and physicians. Measurement of the perceptions of nurses and physicians of the level of collaborative

practice was accomplished using the Collaborative Practice Survey (CPS) developed by Weiss and Davis (1985), and modified by Jones (1991).

Background

The National Joint Practice Commission (NJPC) was established in 1971 at the recommendation of the National Commission to Study Nursing and Nursing Education (Devereux, 1981a; Halloran, 1983). A joint venture between the American Nurses Association (ANA) and the American Medical Association (AMA), the NJPC's charter involved studying the roles and interactions of nurses and physicians (Fagin, 1992). The NJPC, with funding provided from the W.K. Kellogg Foundation, established four demonstration hospitals of varying sizes. The purpose of the project was to implement strategies designed to increase nurse-physician collaboration and make recommendations on the roles each profession would play in an integrated health care delivery system (Crowley & Wollner, 1987).

The NJPC (1981) described joint or collaborative practice as a mutually defined relationship between nurses and physicians with the goal "... to integrate their care regimens into a single comprehensive approach to their patients' needs" (p. 3). The commission was dissolved in 1981 and results of the demonstration project published.

Analysis of the project's results encompassed three key areas: (a) Cost effectiveness; (b) satisfaction of patients/families, nurses, and physicians; and (c) quality

of care. The demonstration units' results were then compared to similar traditional units in each of the four hospitals. Results of the analysis found: (a) An insignificant cost difference between the demonstration and traditional units; (b) improved patient satisfaction on the collaborative practice units; (c) improved nurse and physician satisfaction, with increased understanding and respect between the two professions, on the demonstration units; and (d) enhanced quality of care on the collaborative practice units (NIPC, 1981).

Several other studies, in facilities where collaborative practice models have been implemented, also found increased patient/family satisfaction, as well as improved nurse and physician job satisfaction (Baggs & Schmitt, 1988; Chimner & Easterling, 1993; Lyons, Reinke, Sutherland, & Zelenkov, 1992; Tennaro, 1993). Additionally, Burchell, Thomas, and Smith (1983), Crowley and Wollner, (1987), and Arslanian-Engoren (1995), found improved relationships, understanding, and trust between nurses and physicians in collaborative practice environments. Unlike the NJPC (1981) project, other studies of cost factors associated with collaborative practice have found a significant decrease in the cost of care provided using a collaborative practice model (Campbell et al., 1995; Koerner & Armstrong, 1984; Zander, 1988). Quality of care studies have primarily focused on patient outcomes and have shown significant improvement in outcomes in facilities with strong collaborative practice frameworks (Knaus, Draper, Wagner, & Zimmerman, 1986; Tennaro, 1993; Zander, 1988).

As peacetime health care provided in AF MTFs is comparable to civilian institutions, it would seem that the AFMS could achieve results similar to those reported in civilian health care organizations by implementing collaborative practice. Despite the potential benefits of collaborative practice, there is no evidence in the literature that the level of collaborative practice has been assessed in any AF facility. The problem is, therefore, a lack of information in the literature as to the degree collaborative practice is perceived to exist in the peacetime AF health care setting.

Purpose

The purpose of this research is to determine to what extent active duty AF nurses and physicians perceive collaborative practice exists in the current peacetime AF health care setting. Additionally, the study explores the effects of specific demographic characteristics on the level of collaboration. The demographic variables are (a) age, (b) rank, (c) length of time on active duty, (d) area of practice, (e) position, (f) educational level, (g) gender, and (h) Medical Treatment Facility (MTF) type.

Theoretical Framework

The measurement of perception is key to this study. The theoretical framework for measurement is Fishbein's Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980). A social psychology theory, TRA is based on volitional behavior prediction. The

TRA makes three general assumptions. First, man is a rational being and makes "systematic use of the information available to them" (p. 5). Second, "most behaviors of social relevance are under volitional control and thus predictable from intentions" (p. 41), and third, intentions are the direct precursors of behavior. Ajzen and Fishbein (1980) assert that people weigh the implications of their actions before deciding whether or not to engage in a specific activity or behavior. Thus, if the intent to behave in a collaborative manner is high it can be inferred that the state of collaborative practice is high.

Key to understanding the TRA, is the distinction among the concepts of belief, attitude, intention, and behavior (Pryor, 1990). A belief is a perception, insight, or conviction that ties "an object to a given quality or attribute" (p. 148). A belief, relative to behavior, ties the commission of an act to a specific behavioral result. An attitude is defined as either a positive or negative feeling toward a behavior or object. Intention is defined as a special type of belief that describes an individual's self evaluation of the likelihood or probability that he/she will or will not act in a certain manner. Behavior is "an overt act that can be observed and studied in its own right" (p. 149).

According to the TRA two basic elements form the foundation for an individual's intent to behave in a certain way, under certain circumstances. Ajzen and Fishbein (1980) have labeled these elements or determinants as the attitude toward the behavior and the subjective norm.

The attitude determinant is personal in nature and described as "the individual's

positive or negative evaluation of performing the behavior" (Ajzen & Fishbein, 1980, p. 6). Restated, performance of the behavior is assessed by the individual as being either good or bad or right or wrong in a given situation. Pryor (1990) describes this attitudinal determinate as a "personal norm"(p. 149) and likens it to a "felt moral obligation to perform, or not perform, a behavior" (p. 149).

The subjective norm is defined as "the person's perception of the social pressures put on him to perform or not perform the behavior in question" (Ajzen & Fishbein, 1980, p. 6). Stated differently, the individual believes his/her significant social group either supports or rejects performance of the behavior. According to Ajzen and Fishbein (1980), if an individual considers performing the behavior a positive action and believes his/her social group supports the behavior, the individual will normally perform the behavior.

The theory maintains that while attitudinal and normative factors are the determinants of intent, they may have differing degrees of importance or relative weights to the individual. An example, presented by Ajzen and Fishbein (1980), describes two women, both with a positive attitude toward the use of birth control pills, but under social pressure by their referent groups not to use the contraceptive. One woman intends to use the contraceptive, while the other does not. The difference in their intent is due to the relative weight each has placed on the attitudinal and normative factors. The woman whose intention is to use birth control pills places a higher degree of importance on her own feelings, or personal norm toward the behavior; while the second woman places a

higher value on her subjective norm, or her social group's disapproval of the behavior.

Underlying this phenomenon is the concept that both personal and subjective norms are the product of beliefs. Behavioral beliefs are those convictions an individual holds toward a specific behavior. A person convinced that engaging in a specific action will most likely have a positive outcome, is said to hold a positive behavior belief. An individual convinced the action will most likely produce a negative outcome is said to hold a negative behavioral belief (Ajzen & Fishbein, 1980).

Subjective norms are based on the individual's perceptions or beliefs about what another individual or group thinks should be done. These normative beliefs can also be described as positive or negative depending on whether the individuals believe that most of the referents they feel motivated to comply with think the action should be taken or avoided. Therefore, perceived social pressure from the referent individual or group forms the basis for normative beliefs. The Theory of Reasoned Action can be summarized by the schematic presented by Ajzen and Fishbein (1980) (Figure 1).

According to Ajzen and Fishbein (1980) "intention is the immediate determinant of behavior, and when appropriate measure of intention is obtained it will provide the most accurate prediction of behavior" (p. 41). Therefore, based on the Theory of Reasoned Action, if an individual's intent to behave in a certain way, under certain circumstances can be determined, the individual's behavior can be accurately predicted.

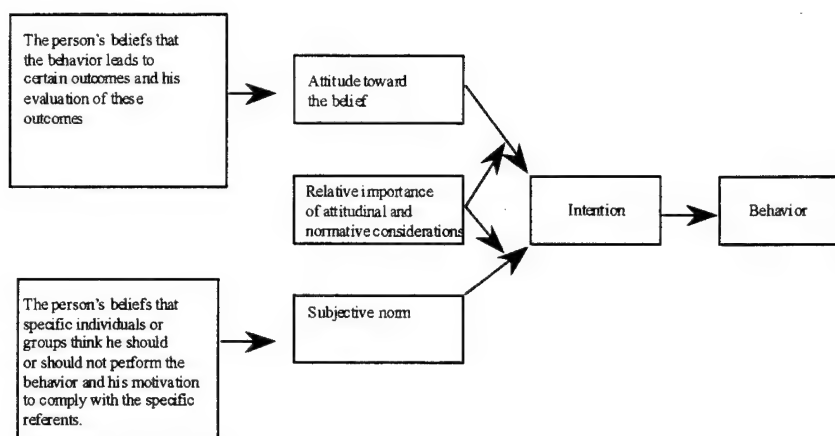


Figure 1. Factors determining a person's behavior.

Source. Understanding Attitudes and Predicting Social Behavior (p. 8), by I. Ajzen and M. Fishbein, 1980, Engelwood Cliffs, NJ: Prentice-Hall.

Significance

Collaborative practice has been shown to benefit civilian health care facilities by decreasing costs and improving patient outcomes. Increased patient, family, nurse, and physician satisfaction levels have also been documented in these facilities. Determining the perception of the level of collaborative practice in the AF, using the TRA as a framework for the prediction of volitional behavior, will provide valuable information on the current status of collaboration between AF nurses and physicians. These baseline data will enable future research to measure the progress of implementation of collaborative practice in the AF health care system.

Research Questions

What is the perceived level of collaborative practice in Air Force Medical Treatment Facilities as reported by active duty nurses and physicians.

What influence do the demographics of rank, educational level, practice setting, type of facility, age, gender, position, and length of time on active duty have on the perception of collaborative practice.

Definitions

Active Duty	Individuals whose primary job/career is in the military, including Reserve or National Guard personnel serving on extended active duty or fulfilling training requirements
Civilian	Non-military
Medical Treatment Facility (MTF)	Permanent structures utilized for the provision of health care. For the purposes of this study the term is limited to medical centers, regional hospitals, hospitals, and clinic facilities.
Military	The active branches of the armed forces which include the Army, Air Force, Navy, and Marine Corps. Reserve and National Guard personnel not serving on active duty

at the time of this study are excluded for the purposes of this study.

Assumptions

Based on the Theory of Reasoned Action (Ajzen & Fishbein, 1980), it is assumed that behaviors follow self-reported perceptions of behavior. Therefore, study participants' self-reported perceptions of assertiveness and cooperativeness are assumed to accurately reflect their level of collaborative behavior. It is also assumed, for the purpose of this study, that peacetime AF health care settings are comparable to similar civilian health care settings and the facilitation of collaborative practice in the AFMS is a desirable goal for the service.

CHAPTER 2

LITERATURE REVIEW

The National Joint Practice Commission (NJPC) laid the foundation for the implementation and study of collaborative practice. According to Johnson (1992) collaborative practice provides a framework that considers environmental impacts, technological advances, resource availability, and patient acuity in the development of plans of care. These plans of care provide optimal outcomes for both the patient and the attendant conditions in which the interactions, between the patient and delivery system, take place. Since dissolution of the NJPC in 1981, numerous authors, from both professions, have continued to explore, define, and study the impact of collaborative practice on patients, health care professionals, and the health care delivery system.

Definitions of Collaborative Practice

The NJPC (1981) defined collaborative practice as a mutually defined relationship between nurses and physicians. "The purpose of their collaboration is to integrate their care regimens into a single comprehensive approach to their patients' needs" (p. 3). Weiss and Davis (1985) define the concept as "...interactions between nurse and physician that enable the knowledge and skills of both professionals to synergistically influence the patient care being provided" (p. 299). Coeling and Wilcox (1991), Ruble and Thomas

(1976), Kilmann and Thomas (1977), and Johnson (1992), identified cooperation and assertiveness as the two elements essential to collaboration or collaborative practice.

Kilmann and Thomas (1977) define cooperation as “attempting to satisfy the other person’s concerns” (p. 310) and assertiveness as “attempting to satisfy one’s own concerns” (p. 310). According to Ruble and Thomas (1976) collaboration is both assertive and cooperative and can be characterized as “an attempt to problem solve with the other person [and] find solutions which result in high degrees of satisfaction for both parties” (p. 145). This method of interaction, according to Johnson, “facilitates the exchange of bodies of knowledge among professionals” (p. 38).

Trueman (1991) defines collaboration as nurses and physicians working as colleagues to “improve a patient’s health” (p. 70). The author further describes it as the combination of efforts and sharing of resources between nurses and physicians that results in a larger pool of information used to design a plan of comprehensive patient care. Trueman maintains that “collaboration between nurses and physicians is ‘assertive and cooperative’” (p. 70).

Lamb and Napodano (1984) describe collaborative practice as a process that requires both joint planning, as well as shared accountability between the nurse and physician for outcomes of care. They further describe collaborative practice as an integrative process, where input from individual team members is woven into a cohesive whole that identifies and evaluates new problems, as well as develops and implements

plans of care. Baggs and Schmitt (1988) depict the concept as a cooperative environment where nurses and physicians work together sharing problem solving, decision making, and responsibility for the outcomes of joint plans of patient care. Arslanian-Engoren (1995), identified the concept as a process where relationships between physicians and nurses are built around mutual trust and respect, and incorporates a commitment to develop a "collegial manner of practice" (p. 68). Additional descriptors of collaborative practice include "coequality [sic], shared clients, interdependence, collegiality, shared accountability, complementarity [sic], cooperativeness, mutual trust and respect, and joint decision-making" (McLain, 1988, p. 31).

Burchell, et al. (1983) define collaborative practice as "a team of task oriented personnel who have the appropriate backgrounds, training, and commitment to function together in achieving medical goals" (pp. 9-10). Chimner and Easterling (1993), and Lyons, et al. (1992) characterize it as a patient focused model where physicians and nurses share the same patient care philosophy and the goal is to meet the needs of the patient and family. Two key elements appeared repeatedly through the literature reviewed. Collaborative practice requires a complimentary interactive relationship between nurses and physicians and a focus on patient care.

The literature provides, in addition to numerous definitions, several synonyms for collaborative practice. Elpern, Rodts, DeWald, and West (1983) coined the term "associative practice" (p. 27). Schull, Tosch, and Wood (1992) use the phrase

collaborative care management. Williams, Williams, Zimmer, Hall, and Podgorski (1987) call it an interdisciplinary team approach. Mechanic and Aiken (1982) refer to it as cooperative care, Zander (1988) group practice, and McLain (1988) collegial practice.

The definition of collaborative practice presented by Weiss and Davis (1985), "...interactions between nurse and physician that enable the knowledge and skills of both professionals to synergistically influence the patient care being provided" (p. 299) was used to select applicable writings for inclusion in this study. Nurse-physician practice models found in the literature, that met the definition, were considered collaborative practice, regardless of the term used to depict the model.

Although the proposed definitions and the terminology provided in the literature may vary, the impact on patients, nurses, physicians, and institutions has been well documented. Three key areas have been the primary focus of studies related to collaborative practice: (a) Satisfaction, of patients/families, physicians, and nurses; (b) cost effectiveness; and (c) quality of care.

Satisfaction

The majority of studies found in the literature related to collaborative practice and satisfaction involved the evaluation of nurse satisfaction. Fewer studies explored the impact of collaborative practice on patients/families and physicians. This may be due, in

part, to the fact that the majority of studies found in the literature were conducted by nurse researchers.

Patient satisfaction. The NJPC (1981), in finalizing their evaluation of the four hospitals that served as collaborative practice demonstration sites, hired the Policy Research Corporation of Chicago to “measure the degree of positive or negative subjective reactions on the part of the principle participants [patients, nurses, and physicians] in the demonstration projects” (p. 23). The research firm contacted 109 discharged patients by telephone. The focus of the telephone survey was on the patients’ perception of nurses and physicians. The survey also tried to determine whether or not patients perceived a difference in the nurse-physician relationships during their hospitalization. Generalized findings of the firm were reported by the NJPC as “Patients received better nursing care and are highly satisfied with their care” (NJPC, 1981, p. 23). Ninety-four percent to 100 % of nurses and 50% to 73% of physicians felt that their patients were more satisfied on the demonstration units than on traditional units.

Devereux (1981b), at a 1980 conference of NJPC demonstration project participants, stated that all units involved in the study reported a dramatic decrease in patient complaints. According to Devereux,

One reason is that fewer errors are being committed, but more importantly, the patients sense a change in attitude. Complaints are born of frustration, and very

often patients focus on 'errors' because they feel people do not care. In the project units, the patients know their nurse, know their doctor, and fell [sic] well informed; they feel cared for (p. 39).

Chimner and Easterling (1993) conducted a multifaceted study on a 30 bed rehabilitation unit at St. Joseph Mercy Hospital, a 528 bed community hospital in Pontiac, Michigan. Their study included the administration of the Risser Patient Satisfaction Questionnaire, modified by Henshaw and Atwood for acute care inpatients (as cited in Chimner & Easterling, 1993), to patients on the rehabilitation unit. Results of their study showed a small overall improvement in patient satisfaction, when pre-implementation results were compared to post-implementation of a collaborative practice model. Patients evaluated three areas of professional nursing characteristics, including technical/professional, interpersonal/trusting, and interpersonal/education. The total score prior to implementation was 95.73, with a post-implementation score of 98.63. The authors reported "Although there was no statistically significant improvement in patient and family satisfaction levels since the implementation of collaborative practice, there have been verbal reports of improved satisfaction due to improved continuity of care" (p. 228).

Tennaro, (1993) studied the effects of collaborative practice on professional autonomy and patient outcomes. Part of her study, which involved an experimental, or collaborative practice unit, and a traditional or contrast unit, included a survey of patients'

satisfaction levels. The findings revealed “with the exception of satisfaction with discharge procedures and overall hospital quality, every other aspect of hospital care was rated more positively by the experimental group than the contrast group” (p. 99). Tennaro qualified the findings by stating that the differences in some ratings, such as satisfaction with physicians, were only slightly higher on the experimental unit.

Nurse satisfaction. Several studies emphasize the impact of collaborative practice on nurse satisfaction (Alt-White, Charnes, & Strayer, 1983; Baggs & Ryan, 1990; Chimner & Easterling, 1993; NJPC 1981). The NJPC provided the results of the Policy Research Corporation of Chicago findings in interviews with 78 nurses, from the four demonstration hospitals. The research corporation reached a general conclusion that indicated nurse’s job satisfaction was increased with the implementation of collaborative practice.

More specific findings from the interviews were incorporated in the NJPC (1981) report. Fifty percent to 60% of the nurses reported enjoying nursing more on the demonstration (collaborative practice) units, with 50% to 75% reporting an increase in job satisfaction on the collaborative practice unit, when compared to previous experiences on traditional units. Physicians in the study also reported perceiving nurses as being more satisfied on the collaborative practice unit.

One hundred percent of the nurses surveyed indicated they believed their level of

autonomy and responsibility had increased, resulting in more frequent and better patient care decisions. Seventy percent to 80% of the physicians concurred with the nurses' perceptions regarding autonomy and responsibility. They reported an increase in the number and quality of patient care decision made by the nurses, which positively impacted their medical practice.

Alexander, Weisman, and Chase (1982) found responsibility and autonomy were two key factors which had significant positive correlations with nurses' job satisfaction levels. Their findings support those found in a longitudinal study of hospital staff nurses by Weisman, Alexander, and Chase (1981). Weisman et al. identified autonomy as the number one determinant of staff nurse job satisfaction. Therefore, if collaborative practice increases nurses' autonomy, as indicated by the NJPC (1981) and increased autonomy relates directly to improved job satisfaction, as indicated by Weisman, et al. (1981) and Alexander, et al. (1982), then collaborative practice would be a vehicle for improving nursing satisfaction.

The 1993 study by Chimner and Easterling at St. Joseph Mercy Hospital included pre- and post-implementation administration of the Munson and Heda job satisfaction questionnaire. Statistically significant improvements were reported in the overall, intrinsic, and total scores. The overall score represented general job satisfaction, while the intrinsic component measured self-actualization of needs. Total scores increased from a pre-implementation mean of 43.76 to a mean of 50.67 following implementation of the

collaborative practice model.

The authors also reported a decrease in professional nurse turnover rates from 43.9% to 26.5% over a two year period, with a resulting improvement in unit morale, which they linked directly to the decreased turnover rate. Chimner and Easterlings' (1993) findings supported those found by Weisman, et al. in 1981.

Weisman et al. (1981) found turnover rates of staff nurses were negatively correlated with job satisfaction levels. In turn, job satisfaction levels were positively correlated with perceptions of professional autonomy. Nurses reporting low levels of job satisfaction, also perceived their level of professional autonomy to be low. The turnover rate of staff nurses who reported low levels of autonomy was greater than nurses who reported higher levels of job satisfaction

Baggs and Ryan (1990) explored the relationship among collaboration, autonomy, and nurse satisfaction by the simultaneous administration of three different assessment tools. The Collaborative Practice Scales (CPS) developed by Weiss and Davis, the Index of Work Satisfaction developed by Stamps and Piedmonte, and the Decision About Transfer scale, developed by the authors, were administered to 68 intensive care unit (ICU) nurses in a large northeastern university medical center. The study spanned a six month period and included a one year follow-up to assess satisfaction and turnover rates in the ICU. Results of the study indicated a strong correlation between the presence of collaborative practice, as it related to autonomy, and job satisfaction. No significant

correlation was found between general collaboration and general job satisfaction, except in young, less experienced nurses.

Alt-White et al. (1983) conducted a study that surveyed 446 nurses from 46 different units, in a large university teaching hospital. Included in their study were personal, managerial, and organizational factors associated with collaborative practice. The strong positive correlation the authors found between collaborative practice and nurses' job satisfaction was of particular interest. Their results showed nurse job satisfaction was strongly related to nurse-physician collaboration. The authors were unable to definitively ascertain whether increased collaboration caused an increase in job satisfaction or whether increased job satisfaction produced the increase in collaboration reported. However, they concluded that "Since it takes both nurses and physicians to behave in ways that lead to true collaboration and it is not completely controllable by nurses alone, we would expect that satisfaction is more a product of collaboration than vice versa" (p. 17).

Beth Israel Hospital, Boston, Massachusetts, a 504 bed tertiary teaching hospital, opened a new medical-surgical unit in 1989. The mission of the unit, according to Alpert, Goldman, Kilroy, and Pike (1992) was "to develop a model of primary nurse-physician collaboration, and in the process, to define and describe the concept and practice" (p. 47). Prior to opening the unit, the Weiss-Davis CPS and the Hinshaw and Atwood Nurse Job Satisfaction Scale were administered to the 19 nurses assigned to the new collaborative

practice unit. The instruments were re-administered after one year. The authors reported a statistically significant increase in nurse job satisfaction, as well as in attitudes favorable toward collaborative practice.

Lyons, et al. (1992) studied the effects on nursing in a birth center based on a collaborative practice model. The center, located within an urban medical center in the Pacific Northwest, was cooperatively designed by patients, childbirth educators, administrators, physicians, and nurses. According to the authors, nurses, patients, and families were integral to the decisions and care involved in the birthing process. Nurses were consulted in the recruiting and hiring of physicians, and vice versa. Lyons, et al. write,

Nursing has blossomed in this environment. Staff nurses are fully supported and encouraged as valuable team members. This, in turn, has developed the esteem of nurses and resulted in professional satisfaction and excellent retention. Nurses enjoy being respected for their knowledge and skills and are treated as true colleagues with a valuable contribution to make. Nurses are expected to think and act autonomously, which in turn truly allows patients to have options (p. 105).

Physician satisfaction. Studies in the literature that reported on the relationship of collaborative practice to physician satisfaction, largely associated satisfaction with quality of care, communication with nursing, and confidence in nursing care. Findings from the

NJPC (1981) summary report included feedback from 48 physicians involved in the demonstration project. The results of these interviews revealed an average of 61.5% (across the four hospitals) felt that joint practice facilitated their practice of medicine. Additionally, 54.5% reported they were more satisfied with the quality of medicine they were able to practice on the demonstration units. Eighty-five percent stated that increased nurse satisfaction experienced on the demonstration units positively affected their own satisfaction levels. Physicians also reported better nurse-physician relationships characterized by mutual respect, improved communication, and increased joint patient care decisions. Eighty-three percent reported they preferred to admit their patients to the demonstration units as opposed to traditional units, citing greater confidence in the level of care.

According to Deveruex (1981b) the consensus of physicians who participated in the NJPC demonstration project and attended the 1980 conference was positive. Feelings of the physicians are recorded by the author as "they felt more comfortable working with the nurses and more willing to trust and depend on nursing judgments" (p. 39).

Chimner and Easterling (1993) in their rehabilitation unit study list several areas identified by the involved physicians that contributed to their increased satisfaction with the collaborative practice model. The physicians cited four major areas that that influenced their satisfaction levels: (a) Increased efficiency in patient discharges; (b) decreased length of stay; (c) greater nursing understanding of patient problems with improved follow

through and consistency of solutions; and (d) improved team functioning.

Koerner, Cohen, and Armstrong (1986) discussed the implementation of collaborative practice at Hartford Hospital in Connecticut. Two units were initially selected for the project. One, designated the Collaborative Practice Unit (CPU), served as the experimental site, while a team nursing unit served as the control unit. The units were of identical size, had the same support services, and similar patients. Data were collected prior to the initiation of the CPU, at the conclusion of the study, and at four, eight, and 12 month intervals during the project. A total of 112 attending and staff officers were surveyed during the project. The attending and staff physicians believed that collaborative practice facilitated communication, efficiency of staff, and quality of patient care. The authors reported increased physician satisfaction with their professional practice from the majority of physicians, and 90% of the physicians who participated in the study recommended the expansion of the pilot program to the rest of the hospital.

Cost Effectiveness

Halloran (1983) conducted an analysis of the cost-effectiveness of the NJPC demonstration project. The four hospitals were examined using nursing salaries as the primary indicator of direct cost. Rationale for focusing on the salary cost of registered nurses was, according to Halloran, due to the fact (at the time of the project) that nursing services constituted approximately one-half of all hospital personnel, and accounted for

between 20% and 30% of operating expenses.

Halloran (1983) found that the demonstration units had a negligible increase in per patient day nursing salary expenses, averaging \$3.69. The author obtained his results by analyzing both the demonstration and control unit at each facility separately, then averaging the differences for the four demonstration and four control units. Actual salary expenses varied considerably due to location and size of the participating facility. According to Devereux (1981b), since the project "was established as a demonstration model, not a research project" (p. 39), many of the objective tools common to research were not applied to the study. Therefore, much of the results are what Devereux termed "soft data" (p. 39), which she defined as relying extensively "subjective responses and few verifiable statistics" (p. 39).

However, in other studies on the cost effectiveness of collaborative practice models of care, more stringent accounting procedures have been used. The most frequently used cost accounting factors were average length of stay (ALOS); nursing staffing patterns, including overtime, turnover, straight time, and absences; and total cost of hospitalization.

Schull, et al. (1992) analyzed the impact of collaborative case management at Parkland Memorial Hospital in Dallas, Texas. Their study included analysis of both cost and ALOS of stroke patients. Patients assigned to the collaborative case management group had a decrease of 2.9 days in ALOS and an average decrease in hospital charges of

\$53,462, or 21.5%.

Williams, et al. (1987) conducted a study of 117 older adults, age 65 and over. Their study randomly assigned the participants to a multidisciplinary team, structured around a nurse-physician collaborative practice, or to one of a panel of internists. Patients were given a complete geriatric assessment on initial assignment to the groups and followed for one year. The experimental (collaborative practice) group experienced a 39.8% decrease in hospital days when compared to the control group. An annual savings of \$2741 per participant, representing a 25% reduction in overall institution costs, including hospital and nursing home stays, was realized for the experimental group.

Zander (1988) discussed the implementation of a nursing case management approach to care at New England Medical Center Hospitals. The model was built around the key components of collaborative practice. The center point of the model was what Zander called nurse-physician group practices. The group practices were teams of nurses and physicians who, along with the patient and family, established goals, determined desirable clinical outcomes, and set evaluation criteria. This collaborative practice arrangement incorporated the use of critical pathways as the documentation method for the mutually established treatment modalities and outcome measurements. The critical pathway outlined the full range of treatment and follow-up for the patient, and was developed by the collaborating team. One nurse from the group practice provided the oversight of the patient's care in collaboration with the attending physician. The results,

after one year, were considered significant. Zander (1988) presented two distinctly different group practices whose patients experienced similar results as examples of the outcomes experienced.

The first group practice which provided care for ischemic stroke patients, had a 29% decrease in ALOS, a 47% decrease in the average number of days in the intensive care unit, and were considered transferable to rehabilitation services 7 to 10 days sooner, than those not in the group practice. The second group practice, which had the responsibility for adult leukemia patients, had ALOSs reduced from between 42 to 56 days to 32 days. The author stated "It is essential to note that these changes were not made by 'slicing off' days in a vacuum from quality standards, but rather through a truly collaborative change in clinical management agreed upon by nurses, physicians, and administrators" (p. 24).

Koerner and Armstrong (1984), analyzed the cost effectiveness of the Hartford Hospital study. An overall decrease in total costs on the CPU was attributed, in part, to an increased turnover rate of patients, due to decreased ALOSs. The unit also experienced decreased staff hours, including a 6% reduction in straight time, 55% reduction in overtime, and a 19% reduction in supplemental time. According to the authors, staff also demonstrated an increase in productivity. Total sick hours were reduced 14.5% from 1982 to 1983. The use of float staff was also decreased by 4%, indicating, according to Koerner and Armstrong, an ability to deal with contingencies. Full-time equivalent (FTE) staff

hours were also decreased by 9% from 25 FTEs in 1982 to 22.7 FTEs in 1983.

Campbell, et al. (1995) reported cost efficiency in several areas of care at a Michigan category I trauma/emergency hospital. Cost savings were realized in the reduction of ICU stays of terminal patients through the institution of a collaborative care unit for dying patients. The unit was managed by a clinical nurse specialist (CNS) in joint practice with physicians. Patients, who could not be discharged, were provided supportive care until death, freeing limited high cost/high care resources. According to the authors, "Cost reductions were achieved through reducing length of stay, both in the ICU and the hospital, and by reducing the use of costly interventions that become superfluous in the context of care of a dying patients" (p. 178). Another collaborative practice area was instituted in the hospital's internal medicine practice. The collaborative medicine practice (CMP) provided both inpatient and outpatient care to general medicine patients. Cost savings were realized with a decrease in repetitive tests and procedures through the provision of continuity of care overseen by the CNSs. A significant reduction in repeat admissions due to patient non-compliance with treatment programs was also noted. The rate of maintained clinic appointments in the collaborative outpatient clinic increased to 90%, compared to a 50% rate experienced in the clinics staffed only by residents. This resulted in an increase in effective staff utilization and increased revenues.

Quality of Care

Feiger and Schmitt (1979) conducted a study on the degree of collegiality of four collaborative practice teams, each composed of two nurses, one physician, and one nutritionist. The authors then compared each team's total collegiality score with patient outcomes. The patient outcomes were assessed using 17 team derived goals. The patients were residents in a regional upstate New York minimal care facility that provided meals, medication, and minimal supervision to 300 chronically ill older adults. The patients selected for the study were 60 individuals diagnosed with diabetes mellitus. Once selected, the patients were randomly divided into two groups, stratified by age, gender, insulin dependency, mental status, and primary physician. One group was designated as the control and continued to receive the routine care provided at the facility. The other 30 patients were divided into four groups and assigned to the collaborative practice teams.

Over a period of one year, each team was evaluated on the level of collegiality during team meetings. Upon the completion of the study, the teams were ranked according to their total collegiality scores. Patient outcomes for each team were scored using the 17 consensus goals established by the teams at the beginning of the study. The study found that the team with the highest level of collaboration, reflected by their total collegiality score, also had the best patient outcomes. The team with the second highest score had the second best outcomes and so forth. Feiger and Schmitt (1979) wrote that their findings seem to indicate "Collegiality of team interaction in this type of interdisciplinary health

care team seems to be related to successful patient outcomes” (p. 228). They also stated that they believed a complex relationship between collegiality and both the quality of team decisions and how well team decisions were implemented existed. Those teams that had a higher degree of collaboration made better team decisions and carried out the consensual patient care plans more diligently than those with lower collegiality scores.

One of the most extensive studies on the impact of collaborative practice on patient outcomes or quality of care was conducted by Knaus, Draper, Wagner, and Zimmerman (1986). The authors studied the treatment and outcomes of 5030 intensive care patients in 13 tertiary care hospitals. Using the revised Acute Physiology and Chronic Health Evaluation (APACHE II) system, the patients’ diagnoses, and indications for treatment, the authors predicted the mortality rates at all 13 facilities. They then compared predicted and actual death rates. The study found significant differences between predicted and actual mortality rates. The authors also found that the hospital with the lowest mortality rate had excellent communication between nurses and physicians. According to Knaus, et al. (1986),

These differences [in mortality rates] appear to relate to the interaction and communication between physicians and nurses. Our results support the belief that involvement and interaction of critical care personnel can directly influence outcome from intensive care. The highest quality of care, however, appears to require a high degree of involvement by both dedicated physicians and nurses in

ongoing clinical care (p. 416).

Baggs, Ryan, Phelps, Richeson, and Johnson (1992) also conducted a study in an intensive care setting using the APACHE II to determine severity of illness. The authors used the CPS developed by Weiss and Davis to assess the level of collaboration between medical residents and nurses deciding when to transfer patients out of the unit. Baggs, et al. found a strong negative correlation between the level of collaboration reported by nurses and patient outcomes. As the level of collaboration increased, the negative outcomes decreased. An interesting finding from the study showed no correlation between the level of collaboration reported by the residents and patient outcomes. The study also found that the correlation between the medical residents' and the nurses' perceptions of collaboration were extremely low.

The authors felt the difference between the two groups and their reports of collaboration may have been due to one or two factors. The first factor was the interpretation of behaviors as collaborative. Even though the same definition was printed on both the residents' and nurses' survey forms, clarification of the two groups' interpretation of the definition was not pursued by the authors, and may have resulted in different perceptions of what constituted collaboration. The second factor Baggs et al. (1992) considered as having an impact on the differences in the results was the level of importance placed on behaviors by the two groups. The authors wrote, "Resident physicians may have viewed behaviors nurses saw as collaboration as less important

because they had the authority to write transfer orders without consulting nurses” (p. 23).

Summary

Collaborative practice has received considerable attention in the literature since the initiation of the NJPC demonstration project in the 1970s. A great deal of effort has been expended by researchers, in both medicine and nursing, to operationalize the concept and several synonyms have been developed to describe what Weiss and Davis (1985) have described as “...interactions between nurse and physician that enable the knowledge and skills of both professionals to synergistically influence the patient care being provided” (p. 299). Weiss and Davis’ definition of collaborative practice was used as the criterion for selection of literature applicable to this research effort.

Studies found in the literature explored the impact of collaborative practice on three critical components of health care delivery; (a) satisfaction, (b) cost effectiveness, and (c) quality of care. There have been documented improvements in nurse, patient, and physician satisfaction on units that have implemented a collaborative practice model (Alpert, et al. 1992; Alt-White, et al. 1983; Baggs & Schmitt, 1988; Chimner & Easterling, 1993; Lyons et al., 1992; Tennaro, 1993). Collaborative practice units have also been shown to be effective in reducing the cost of care, primarily through decreased length of stays and decreased nursing costs (Campbell, et al., 1995; Koerner & Armstrong, 1984; Schull, et al., 1992; Tennaro, 1993; Williams, et al., 1987; Zander, 1988). Improved

quality of care, measured by patient outcomes has also been attributed to increased physician-nurse communication and interaction experienced on collaborative practice units (Baggs, et al., 1992; Feiger & Scmitt, 1979; Knaus, et al., 1986). Fagin, writes, “compelling evidence--both in the literature and anecdotal—reveals the value of collaboration and the need to promote it” (p. 298). She goes on to write

The challenge for physicians and nurses to work together to address the very real health care problems of our present and future has never been greater. A single-discipline, self-centered view of the future will be destructive to both professions, to the newly emerging health care system, and most of all, to those who must be healed (p. 302).

CHAPTER 3

METHODOLOGY

The purpose of this research was to determine to what extent collaborative practice was perceived, by active duty nurses and physicians, to exist in the current peacetime AF health care setting. Additionally, the study explored the effects of specific demographic characteristics on the level of collaboration. The demographic variables were (a) age, (b) rank, (c) length of time on active duty, (d) area of practice, (e) position, (f) educational level, (g) gender, and (h) Medical Treatment Facility (MTF) type.

Two key elements for collaboration, assertiveness and cooperativeness, have been identified by several authors (Coeling & Wilcox, 1991; Johnson, 1992; Kilmann & Thomas, 1977; Ruble & Thomas, 1976; Trueman, 1991; Weiss & Davis, 1985). These criteria are quantifiable by administration of a tool developed by Weiss and Davis (1985) and modified by Jones (1991). This research surveyed active duty AF nurses and physicians to assess their perception of the presence or absence of collaborative practice in their practice setting, using the modified Collaborative Practice Scale (Jones, 1991). Demographic data to describe the sample and explore their impact on the respondents' perceptions were also solicited.

Sample

The sample was selected using a one-stage cluster method. The 64 Medical Treatment Facilities (MTFs) located in the continental United States were alphabetized and a table of random numbers was used to prioritize the facilities for survey receipt. An attempt was made to obtain the assigned number of active duty nurses and physicians at each of the first 30 facilities. The information requested was received by the researcher on 17 of the 30 facilities. Those 17 facilities were selected as survey sites. Clinical facilities outside the 48 contiguous states were excluded by the researcher due to time and communication constraints.

A total of 313 nurse surveys and 313 physician surveys were distributed among the 17 facilities. The number of surveys distributed was based on a sample precision table and the total number of active duty nurses and physicians in the AF. The total number of nurses, 4478, and physicians, 4352, were obtained through the Office of the Surgeon General of the Air Force (S. Hall, personal communication, November 15, 1996). Nurses and physicians not serving in clinical facilities were excluded from the study by the researcher for two reasons; (a) by definition, collaborative practice focuses on the delivery of patient care and patient care is primarily provided in a clinical facility and (b) the estimated number of nurses and physicians serving in non-clinical settings is less than 15%. Over-sampling was undertaken by the researcher in an effort to achieve a returned sample

size that would allow a sample precision of $\pm 7\%$.

Instrumentation

The instrument used in this research was modified by Jones (1991) (Appendix A) from the Collaborative Practice Scale (CPS) designed by Weiss and Davis (1985) (Appendix B). Permission to use the survey and scoring method was sought and received from the two principle researchers, Weiss (Appendix C) and Jones (Appendix D).

The original nurse scale measured the perception of assertiveness and was comprised of two subscales. One subscale measured the nurse's perceptions of his/her direct assertion of professional expertise and opinion (five items). The second subscale (four items) measured the nurse's perceptions of the active clarification of mutual responsibilities of nurses and physicians. The original physician's scale, also divided into two subscales, contained 10 items which measured the a physician's perception of the level of cooperation experienced interacting with nurses in a health care setting. One subscale measured the physician's perception of acknowledgment of the nurses contribution to patient care (five items), and the second measured perceptions of consensus development with nurses (five items). Jones (1991) combined the original nurse and physician scales for administration to both nurses and physicians. This tool quantifies the level of assertiveness and cooperation among physicians and nurses through the completion of 19 items such as "I discuss areas of agreement and disagreement with

physicians (nurses) in an effort to develop mutually agreeable health care goals” and “I work toward consensus with the nurse (physician) regarding the best approach to caring for a patient”. Respondents are asked to rate the absence or presence of the indicator in their practice on a 6-point Likert-type scale (1 “never” to 6 “always”). This researcher, to facilitate ease of response by the participants, modified Jones’ versions of the CPS by anchoring each numerical response to a descriptor of behavior (Appendix E).

Concurrent and predictive validity for the instrument were established by Weiss and Davis (1985) using Spearman’s Coefficient. Concurrent validity was established using the Health Role Expectations Index (HREI). Weiss and Davis (1985) found significant correlation between scores on the HREI and CPS with the nurse participants ($r_s = .25$, $p < .01$). Physician correlation on the HREI and CPS was $r_s = .22$, $p < .05$. Predictive validity was established by participant submission of the name of an evaluator from the alternate profession (physician if the participant was a nurse, and nurse if the participant was a physician). The evaluator was asked to score the participant using the CPS. Evaluators were not privy to the results of the participant’s self-evaluation, and confidentiality was assured. Gender of the physician and physician behavior were found to be predictors of scores on the physician CPS. Education level and area of practice were CPS score predictors for the nurse participants.

Reliability of the instruments was established using Cronbach’s Alpha Coefficient, resulting in an alpha for the nurse and physician Collaborative Practice Scales of .80 and

.84, respectively (Weiss & Davis, 1985). Internal consistency was evaluated using Spearman's Coefficient, which assessed the correlation between factors within the scales and the total scores of each scale. Correlation was found to be significant for both the physician and nurse scales (Weiss & Davis, 1985). Test-retest correlation's were also found significant for both scales, $r_s = .72$ to $.79$ for the nurses and $r_s = .45$ to $.61$ for the physicians

A tool for the solicitation of demographic data was designed by this researcher (Appendix F). The demographic information sought included age, gender, educational level, military rank, length of time in service, practice unit, position, and MTF type.

Scoring

Participants' survey responses were scored for both assertiveness, defined as "attempting to satisfy one's own concern" (Kilmann & Thomas, 1977, p. 310), as measured by the sum of questions one through nine, and for cooperativeness or cooperation, defined by Kilmann and Thomas as "attempting to satisfy the other person's concerns" (p. 310), as determined by the sum of questions 10-19 on the CPS. The highest possible score for assertiveness was 54, indicating a response of six for each of the nine assertiveness questions. The lowest possible score was nine, indicating a response of one for each of the first nine questions on the survey. The highest possible score for cooperativeness, as measured by questions 10-19, was 60, indicating each question

received a response of six. The lowest possible score, 10, indicated a selection of one for each of the 10 questions measuring cooperativeness. The resultant scores were then placed on Jones' (1991) two dimensional diagram of concern score for Collaborative Practice Scale (Figure 2).

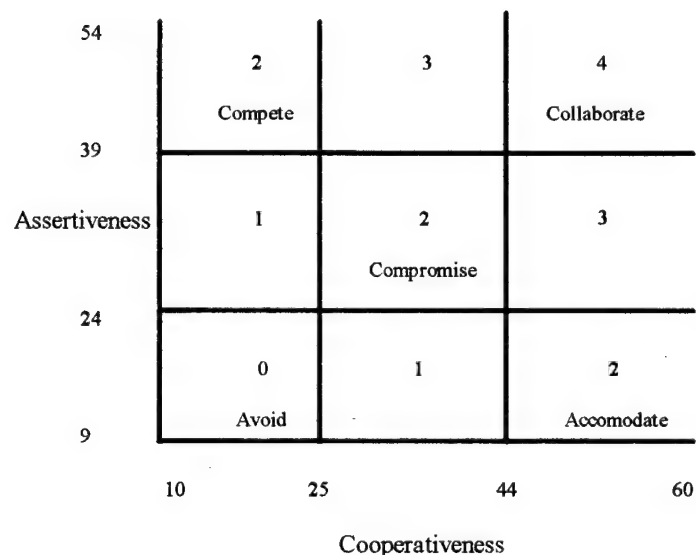


Figure 2. Two dimensional diagram of concern score
for Collaborative Practice Scale.

Source: Nurse-Physician Collaboration and Outcomes of Care (p. 110), by R. A. P. Jones, 1991, Ann Arbor, MI: UMI Dissertation Services. Used with permission.

Jones' diagram was derived from the Management-of-Differences Exercise (MODE) instrument developed by Ruble & Thomas (1976) and refined by Kilmann

&Thomas (1977). The MODE instrument identified five conflict-handling styles defined as varying degrees of assertiveness and cooperation; avoiding (unassertive and uncooperative), accommodating (unassertive and cooperative), compromising (intermediate levels of assertiveness and cooperativeness), competing (assertive and uncooperative), and collaborating (assertiveness and cooperativeness) (Kilmann & Thomas, 1977; Ruble & Thomas, 1976).

Jones' (1991) diagram provided a scoring method for her modified CPS and allowed for the determination on how far removed from collaboration the participants perceive themselves to be in their practice. Essentially a scatter diagram, the diagram provides a method for plotting the scores of individuals or groups. The separate scores from the modified CPS for cooperativeness and assertiveness are plotted on the X and Y axes, respectively. The resulting data point provides a guide that helps to determine where the individual or aggregate ranks themselves in relation to collaborative behavior in their practice. A determination can then be made as to how far the individual or aggregate would need to move in order to reach the square designated as collaborate. Jones provides the following guidelines for scoring on the grid:

1. If cooperativeness (coop) is less than or equal to 25 and assertiveness (assert) is less than or equal to 24 then concern [collaboration] equals zero.
2. If coop is less than or equal to 25 and assert is greater than 24 and less than or equal to 39 then concern equals zero.

3. If coop is less than or equal to 25 and assert is greater than 39 then concern equals 2.
4. If coop is greater than 25 and less than or equal to 44 and assert is less than or equal to 24 then concern equals 1.
5. If coop is greater than 25 and less than or equal to 44 and assert is greater than 24 and less than or equal to 39 then concern equals 2.
6. If coop is greater than 25 and less than or equal to 44 and assert is greater than 39 then concern equals 3.
7. If coop is greater than 44 and assert is less than or equal to 24 then concern equals 2.
8. If coop is greater than 44 and assert is greater than 24 and less than or equal to 39 then concern equals 3.
9. If coop is greater than 44 and assert is greater than 39 then concern equals 4 (p. 111).

Procedure

Data collection. Prior to data collection, a request for approval for survey administration was submitted to the appropriate AF agency in accordance with AF regulations and policies. A survey control number (SCN) was granted (Appendix G). The SCN indicated to the survey site commanders and participants that the survey had been

officially sanctioned by the AF for distribution to active duty personnel. Once AF approval was received, a request for exemption and expedited review for the research was submitted to the University of Missouri, Kansas City Institutional Review Board (IRB) charged with the protection of human subjects. Upon approval from the Social Sciences Institutional Review Board (Appendix H), surveys were distributed to selected survey sites.

A packet (Appendix I) was mailed to each of the 17 selected survey sites. The packet contained: (a) A cover letter to the facility commander explaining the purpose of the survey, requesting permission for the survey to be distributed to active duty nurses and physicians at the facility, and a request for an assigned point of contact (POC) to distribute and collect the surveys; (b) A cover letter outlining the procedure for distribution, collection, and return of the surveys to the researcher, with a stamped, pre-addressed return envelop; (c) A predetermined number of survey packages consisting of a cover letter to the participants, a demographic survey, a CPS, and an envelop for return of the survey to the POC.

The POCs were asked to return the completed surveys to the researcher within 10 duty days (14 calendar days) of receipt of the package. Completed surveys were received from all 17, and no reminder contacts were required.

The number of surveys provided to each facility was based on the number of active duty physicians and nurses assigned. Each facility received an equal number of surveys for

each group, based on the group with the fewest personnel assigned. As an example, one facility had 8 physicians and 11 nurses assigned, a total of 16 surveys, 8 for each group were distributed. This procedure was followed for 14 of the 17 facilities. One facility had over 50 nurses and 48 physicians assigned. A total of 60 surveys were forwarded to that institution for distribution. The remaining two facilities were major medical centers, with over 250 nurses and 150 physicians assigned. Once the number of surveys for the 15 other facilities were determined, the remaining number was divided in half, and a total of 84 surveys were sent to each of the medical centers.

Data analysis. Survey data were analyzed using the Statistical Package for Social Sciences (SPSS). Mean and standard deviation was calculated for interval level demographic data. Frequency and percent calculations were used to describe the remaining sample characteristics.

Relationships between the dependent variables of assertiveness and cooperativeness, and the demographic categories of age, gender, length of service, rank, and educational level were examined using Pearson's Product Moment Correlation. Differences between the groups for assertiveness and cooperativeness were calculated using t-tests. One way analysis of variance (ANOVA) was used to assess the effects of the respondents' areas of practice, position, and MTF type on the dependent variables.

T-tests were also used to examine the differences between the genders in the level

of assertiveness and cooperativeness, both within the nurse and physician groups and across the two groups. Male and female nurses were compared for both dependent variables, as were male and female physicians. A two way analysis of variance was then used to examine the interaction between gender and training (nurse or physician).

CHAPTER 4

RESULTS

The purpose of this research was to determine to what extent active duty AF nurses and physicians perceived collaborative practice to exist in the current peacetime AF health care setting. Additionally, the study explored the effects of specific demographic characteristics on the reported level of collaboration. The data presented include a description of the sample and answers to the research questions.

Perceptions of the level of collaborative practice were measured using the CPS developed by Weiss and Davis (1985) and modified by Jones (1991). The modified CPS is composed of two subscales designed to measure the self-perceptions of a participant's level of assertiveness and cooperativeness. Aggregate scores for both groups, nurses and physicians, were placed on the two dimensional grid presented in the methodology chapter. Placement on the grid allowed determination of the aggregate groups' perceived proximity to collaboration in their practice of medicine or nursing.

A total of 626 surveys were distributed to 17 different AF MTFs, 313 to nurses and 313 to physicians. A total of 282 surveys were returned to the researcher for an overall response rate of 45%. Response rates for the sample, by group, are presented in Table 1.

Table 1

Response Rate of Participants by Group

Group	# Surveys Returned	Overall Response Rate
Physicians	111	39.4%
Nurses	171	60.6%

Sample Characteristics

Sample characteristics were analyzed using the appropriate descriptive statistics. Variations in the data presented are due to incomplete information from some of the participants. Mean and standard deviation were used for interval level data. Frequency and percent were applied for nominal level demographic data. Data for the total sample for the characteristics of age and length of time on active duty (LOS) are summarized in Table 2. Demographic data for the remainder of the categories solicited are presented in Tables 3 through 7.

Table 2

Age and LOS of Sample

Characteristic	Mean	SD	N
Age	37.01	8.13	273
LOS	8.65	6.28	269

Table 3

Demographic Characteristics of Sample (Gender, Rank, and MTF)

Characteristic		Physicians		Nurses		Total	
		n	%	n	%	n	%
Gender	Male	86	78.2%	45	26.5%	131	46.79%
	Female	24	21.8	125	73.5	149	53.21
Rank	2 nd Lieutenant			15	9.15	15	5.64
	1 st Lieutenant			26	15.85	26	9.77
	Captain	51	50	67	40.85	118	44.36
	Major	28	27.45	39	23.78	67	25.19
	Lt. Colonel	9	8.82	16	9.76	25	9.40
	Colonel	14	13.73	1	.01	15	5.64
MTF Type	Clinic	44	39.64	49	28.65	93	32.98
	Hospital	36	32.43	85	49.71	121	42.91
	Regional			4	2.34	4	1.42
	Hospital						
	Medical	31	27.93	33	19.30	64	22.70
	Center						

Table 4

Educational Level of Sample

Characteristic	Physicians		Nurses	
	n	%	n	%
Highest Educational Level				
Medical School	19	6.8%		
Internship	10	3.5		
Residency	63	22.7		
Fellowship	13	4.7		
Post-Medical Degree	3	1.1		
Diploma Degree			3	1.1%
BSN			105	37.8
MSN			60	21.6
Ph. D.			1	.4
Other			1	.4

The positions occupied by the respondents are summarized in Table 5. Some participants indicated two responses for this category. The researcher arbitrarily selected the first response encountered on the survey. Some nurses specified their position when

the category of "other" was selected. Those nurses who did so were primarily nurse practitioners. Physician respondents, who selected "other", did not specify their position.

Table 5

Participants' Positions

Characteristic		n	%
Physician Position	Resident	3	2.7%
	Staff Physician	77	70.0
	Administrative	4	3.6
	Service Chief	21	19.1
	Other	5	4.5
Nurse Position	Administration	15	8.8
	Staff Nurse	74	43.5
	Supervisor	8	4.7
	Education	4	2.4
	Health Promotions	4	2.4
	Nurse Manager	36	21.2
	Other	29	17.1

Table 6 lists the practice area of the physician participants at the time of the

survey. Some respondents marked two responses for this category. The researcher arbitrarily selected the first position encountered on the survey. Those physicians that selected the category "other" did not specify their area of practice.

Table 6

Physicians' Areas of Practice

Characteristic	Variable	n	%
Area of Practice	Internal Medicine	9	8.1%
	Orthopedics	4	3.6
	Psychiatric	1	.9
	Pediatrics	18	16.2
	Surgery	16	14.4
	Obstetrics	4	3.6
	Gynecology	6	5.4
	Emergency	4	3.6
	Family Practice	29	26.1
	Primary Care	6	5.4
	Aerospace Medicine	6	5.4
	Other	8	7.2

Table 7 lists the positions occupied by the nurse participants. Where respondents marked two responses, the researcher arbitrarily selected the first position encountered on the survey. Those who selected "other" did not specify a practice area.

Table 7

Nurses' Areas of Practice

Characteristic		n	%
Area of Practice	Medical	28	16.4%
	Pediatrics	8	4.7
	Critical Care	17	9.9
	Primary Care	11	6.4
	Surgical	20	11.7
	Operating Room	11	6.4
	Emergency	16	9.4
	Managed Care	5	2.9
	Obstetrics/Gynecology	18	10.5
	Family Practice	6	3.5
	Other	31	18.1

Research Question One

The first research question asked what the perceived level of collaborative practice in Air Force Medical Treatment Facilities was, as reported by active duty nurses and physicians. Significant differences were found between the two groups on the dependent variables of assertiveness and cooperativeness. Nurses, as a group, were found to be significantly more assertive and more cooperative than physicians. Results of the t-tests performed on the groups are summarized in Table 8.

Table 8

Comparison of Group Scores of Assertiveness and Cooperativeness

Variable	Group	n	Mean	SD	t	p
Assertiveness						
	Nurse	163	34.2	8.8	4.12	<.001
	Physician	100	29.9	7.8		
Cooperativeness						
	Nurse	159	39.5	8.98	2.55	.013
	Physician	104	36.6	9.42		

Mean scores for the groups on perceptions of assertiveness and cooperativeness were placed on Jones' (1991) two dimensional diagram of concern for collaborative

practice (Figure 3). Using Jones' scoring criteria, both the physician and nurse aggregates placed in square 2, "compromise". According to Kilmann and Thomas (1977), a state of compromise exists when parties exhibit an intermediate level of both assertiveness, "attempting to satisfy one's own concerns" (p. 310) and cooperativeness, "attempting to satisfy the other person's concerns" (p. 310). Based on Kilmann and Thomas' definition, both groups are mid-way to collaboration, which they defined as finding a solution to a problem that is highly satisfying to both parties.

Research Question Two

The second research question asked what influence did the demographics of rank, educational level, practice setting, type of facility, age, gender, position, and length of time on active duty have on the perception of collaborative practice. Pearson's Product Moment Correlation was calculated for the dependent variables of assertiveness and cooperativeness and the independent variables of length of time on active duty, educational level, age, and rank. A significant positive correlation was noted between assertiveness and educational level ($r = .2616$; $N = 260$; $p < .001$). Significant positive correlations were also found between cooperativeness and length of time on active duty ($r = .1708$; $N = 253$; $p = .006$), and cooperativeness and education ($r = .1661$; $N = 260$; $p = .007$).

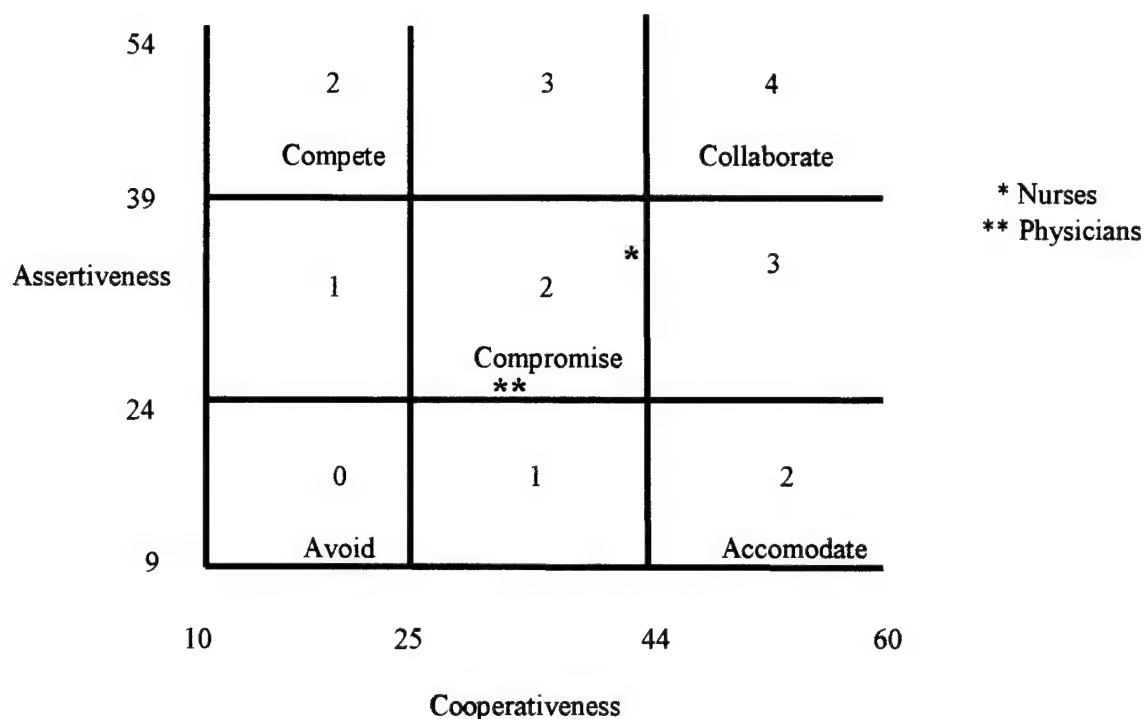


Figure 3. Group placement on the two dimensional diagram

of concern score for Collaborative Practice Scales

Source: Nurse-Physician Collaboration and Outcomes of Care (p. 110), by R. A. P. Jones, 1991, Ann Arbor, MI: UMI Dissertation Services. Used with permission.

A series of ANOVAs revealed a significant difference in the assertiveness scores of nurses based on areas of practice and position. Nurses in managed care, emergency services, critical care, obstetrics, and surgery were all significantly more assertive than operating room nurses ($F = 2.164$; $df = 10, 152$; $p = .0229$). Additionally, nurses occupying an administrative position were significantly more assertive than staff nurses,

nurses in health promotions, nurse supervisors, nurse managers, and nurses occupying other positions ($F = 2.523$; $df = 6, 155$; $p = .0233$). ANOVAs run on the physician group showed no significant differences in assertiveness or cooperativeness associated with either physicians' areas of practice or their positions.

T-tests conducted on the independent variable of gender and dependent variables of assertiveness and cooperativeness revealed a significant difference between males and females across the groups. No significant difference was found between male and female nurses or male and female physicians for either of the dependent variables. However, when gender was examined in relation to the dependent variables, regardless of their profession, women ($n = 141$) were significantly more assertive ($M = 33.7$, $sd = 8.9$, $t = 2.47$, $p = .014$) than men ($M = 31.1$, $sd = 8.2$, $n = 120$) and significantly more cooperative ($M = 39.3$, $sd = 8.9$, $n = 138$, $t = -2.94$, $df = 259$, $p = .004$) than their male colleagues ($M = 36.6$, $sd = 9.4$, $n = 123$). A two way analysis of variance used to examine the relationship between type of training (nursing versus medicine) and gender revealed no significant interaction. No other significant findings were discovered.

CHAPTER 5

DISCUSSION AND CONCLUSION

Collaborative practice has been defined by Weiss and Davis (1985) as "...interactions between nurse and physician that enable the knowledge and skills of both professions to synergistically influence the patient care being provided" (p. 299). Civilian health care organizations that have implemented collaborative practice have found an increase in patient/family levels of satisfaction with their health care experience (Chimner & Easterling, 1993; Devereux, 1981b; National Joint Practice Commission, (NJPC)1981; Tennaro, 1993). Satisfaction levels of nurses and physicians working in a collaborative practice environment have also shown improvement (Alt-White, Charnes, & Stayer, 1983; Baggs & Ryan, 1990; Chimner & Easterling, 1993; Devereux, 1981b; Koerner, Cohen, & Armstrong, 1986; NJPC, 1981). Improvements have also been realized in the areas of cost effectiveness (Campbell, et al., 1995; Halloran, 1983; Koerner & Armstrong, 1984; Schull, et al., 1992; Williams, Williams, Zimmer, Hall, & Podgorski, 1987; Zander, 1988) and quality of care, through improved patient outcomes (Baggs, Ryan, Phelps, Richeson, & Johnson, 1992; Feiger & Schmitt, 1979; Knaus, Draper, Wagner, & Zimmerman, 1986).

While numerous studies have been conducted in civilian health care organizations related to collaborative practice, no information was found in the literature that addressed collaborative practice in the peacetime Air Force (AF) health care system. The purpose of

this research was to determine to what extent active duty AF nurses and physicians perceived collaborative practice to exist in the current peacetime AF health care setting. Additionally, the study explored the effects of specific demographic characteristics on the reported level of collaboration. The demographic variables were (a) age, (b) rank, (c) length of time on active duty, (d) area of practice, (e) position, (f) educational level, and (g) gender and (h) Medical Treatment Facility (MTF) type.

Perceptions of collaborative practice were measured using the Collaborative Practice Scales (CPS) developed by Weiss and Davis (1985) and modified by Jones (1991). Scores for the aggregates on assertiveness, defined by Kilmann and Thomas (1977) as "attempting to satisfy one's own concerns" (p. 310) and cooperativeness, "attempting to satisfy the other person's concerns" (p. 310) the two essential elements for collaboration (Coeling & Wilcox, 1991; Johnson, 1992; Kilmann & Thomas, 1977; Ruble & Thomas, 1976; Trueman, 1991), were then plotted on the two dimensional diagram of concern score for Collaborative Practice Scale developed by Jones.

Based on the Theory of Reasoned Action (Ajzen & Fishbein, 1980), the aggregate scores could then be considered an accurate reflection of the degree of collaborative behavior exhibited by the respondents in their day-to-day practices. A sufficient sample allowed generalizations to be made to the population.

The sample size was derived through the use of a sample precision table and the total number of active duty nurses (4,478) and physicians (4,352) on duty at the time

permission for the survey from the AF was sought. Over-sampling was done by the researcher in an attempt to ensure that a sufficient sample size was realized to afford a sample precision of $\pm 7\%$. A total of 626 surveys were distributed to the 17 survey sites, 313 for nurses and 313 for physicians. Two hundred and eighty-two participants from the 17 AF MTFs completed and returned the surveys, resulting in a sample precision of $\pm 5\%$.

The Statistical Package for the Social Sciences was used to analyze the acquired survey data. Statistical calculations performed on data included:

1. Mean and standard deviation of age and length of time on active duty;
2. Frequency of occurrence for gender, rank, MTF type, educational level, position, and practice area;
3. T-tests to determine the differences in the dependent variables of assertiveness and cooperativeness between the groups;
4. Pearson's r to assess the relationships between the dependent variables and the independent variables of (a) age, (b) rank, (c) educational level, (d) practice setting, (e) position, (f) length of time on active duty, and (g) MTF type;
5. One way analysis of variance to determine differences between groups for the dependent variables in relation to the independent variables listed above.
6. T-tests to determine differences between genders on assertiveness and cooperativeness both within and between the physician and nurse groups;
7. Two way analysis of variance to determine interaction between training (nursing

versus medical and gender.

The research found a significant difference in the scores of assertiveness and cooperativeness between the nurse and physician groups. Nurses were found to be both more assertive ($M = 34.3$, $sd = 8.8$, $t = 4.14$, $p < .001$) and more cooperative ($M = 39.6$, $sd = 9.0$, $t = 2.56$, $p = .011$) than their physician colleagues ($M = 29.8$, $sd = 7.8$; $M = 36.6$, $sd = 9.5$). Utilizing Jones' (1991) scoring criteria, the aggregate scores for both the physicians and nurses placed them in a state of compromise instead of collaboration.

Discussion

This section of the chapter will present the findings related to the research questions and discuss those findings in light of the literature and the theoretical framework of Fishbein's Theory of Reasoned Action (Ajzen & Fishbein, 1980). Interpretation of the underlying causes of the findings will also be presented.

Research question one. The first research question concerned the measurement of collaborative practice as perceived by active duty nurses and physicians in Air Force Medical Treatment Facilities. Both groups fell short of collaboration. Combined scores for the groups placed them in what Jones (1991) described as an environment of compromise rather than collaboration (Figure 3). Both compromise and collaboration, according to Ruble and Thomas (1976), exhibit the behaviors of assertiveness and cooperativeness.

Compromise is described as an intermediate level of both elements, while collaboration is defined as “an attempt to problem solve with the other person [and] find solutions which result in high degrees of satisfaction for both parties” (p. 145). The results of the study showed that AF nurses and physicians are halfway to a collaborative practice environment.

The fact that, as an aggregate, AF nurses and physicians were not engaged in a collaborative practice relationship was expected by the researcher. Personal experience, as well as an extensive review of the literature lead to an expectation of less than a collaborative environment. Since the findings of the study were not unexpected, and collaborative practice is seen as a worthwhile and desirable goal, what warrants discussion is how a collaborative practice environment can be facilitated by the Air Force Medical Service (AFMS).

According to Juran (1989), people develop “a body of beliefs, habits, and practices” (p. 299) to deal with their environment. These behaviors or “cultural patterns” (p. 299) must be understood and addressed before cultural change can successfully take place. The Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980) offers insight into Juran’s concept of cultural patterns.

Behavior, defined by Pryor (1990) as “an overt act that can observed and studied in its own right” (p. 149), is equivalent to Juran’s (1989) cultural pattern. According to the TRA (Ajzen & Fishbein, 1980), behavior is based on two determinants: (a) The attitude determinant, defined by Ajzen and Fishbein as “the individual’s positive or

negative evaluation of performing the behavior" (p. 6), labeled by Pryor as a "personal norm" (p. 149); and (b) the subjective norm, described as the perception by the individual of support or lack of support for performance of the behavior by his/her significant social group (Ajzen & Fishbein, 1980). The TRA's premise is that an individual places different weights or values on these two precursors to behavior when choosing a course of action. If the determinants are in opposition, the individual will behave in the way directed by the determinant that has the greatest personal value or weight. Applicability of the theory to collaborative practice can be seen in a situation where a nurse or physician has a positive personal norm associated with the concept of collaboration, but the relevant social group (other nurses or physicians) does not support the concept. The nurse or physician would behave in a collaborative manner, if he/she placed greater value on his/her personal norm, or eschew collaborative practice, if the social norm had greater personal value.

Understanding these patterns of behavior involves understanding the "social consequence" (Juran, 1989, p. 316) of the proposed change. Juran states that cultural resistance to change occurs when advocates of the change clash with the recipients of the change. "The recipient society always examines the proposed change from the standpoint, What threats does this change pose to the cultural pattern of this society? Their cultural pattern includes such vital matters as status, beliefs, and habits" (p. 317). The findings of this study indicate that collaborative practice does not currently exist in the AFMS, however one could describe the current environment of compromise as being "half-way

there". Since facilitating the development of a collaborative practice environment is seen as desirable, exploration of strategies designed to bring about the desired cultural change deserve consideration.

Several strategies have been proposed to facilitate a collaborative practice environment, and include methods that target both personal and subjective norms. The goals of these strategies are to change the cultural patterns or behaviors of the recipient society by: (a) Increasing nurse-physician understanding of professional roles; (b) fostering mutual trust; (c) increasing nurse autonomy and decision making; (d) facilitating synergistic, patient focused care through shared planning, decision making, problem solving, and responsibility/accountability for patient outcomes; and (e) improving physician-nurse communication (Baggs & Schmitt, 1988; Bradford, 1989; Burchell, Thomas, & Smith, 1983; Lamb & Napodano, 1984; Norsen, Opladen, & Quinn, 1995; Reinke, Sutherland, & Zelenkov, 1992).

These strategies for facilitation of a collaborative practice culture were originally outlined by the National Joint Practice Commission (1981). The Committee's strategies for institutionalizing collaborative practice have been termed a structural approach (Jones, 1994). This approach emphasizes organizational change and relies heavily on support from the institution's administration for successful implementation. Included in the structural model is implementation of (a) primary nursing, (b) integrated patient records, (c) encouragement of nurse decision making, (d) a joint practice committee, and (e) a joint

record review (Alt-White, et al., 1983; Crowley & Wollner, 1987; Devereux, 1981a; Jones, 1994; NJPC, 1981). Successful facilitation of collaborative practice, using this model has been reported by Devereux (1981b), Alpert, et al.(1992), Lyons, et al. (1992), and Koerner, et al. (1986), among others.

Since this study presents only a snapshot or static view of the status of collaborative practice in the AFMS, consideration must be given to influences that may have contributed to the current compromised state of practice. In fact several changes in both the internal and external environment have already impacted on the organizational structure of the AFMS. These changes may, in part, be responsible for the current midway point the study revealed.

Four key changes merit consideration for this discussion. First, the AFMS underwent a major organizational change several years ago with the implementation of the Objective Medical Group (OMG) structure. Under this reorganization, patient care activities were integrated under one chain of authority, or command. The separate departments of nursing and medicine, as well as other traditional departments, were eliminated, facilitating interdisciplinary interaction. Second, the Joint Commission for the Accreditation of Healthcare Organizations (JCAHO), which accredits Department of Defense facilities, as well as civilian institutions, has refocused its evaluation criteria on interdisciplinary, interdepartmental patient care, strongly encouraging the development of joint committees and review structures.

The third major change was the initiation of the implementation of Total Quality Management (TQM) principles in the early 1990s. The concepts associated with TQM or Quality Air Force (QAF) emphasize the cross-functional, interdisciplinary approach to problem solving and continuous improvement, through process action and process development teams. The fourth change impacting nurse-physician interactions has been the application of critical pathways, which are, in the main, a joint plan of patient care.

These four changes have impacted and continue to impact the cultural patterns of the AFMS. They incorporate the strategies outlined by the NJPC (1981), with the exception of primary nursing. Although not necessarily implemented with collaborative practice as the goal, it is logical to assume that they probably have had a major impact on the current state of the practice, and may foster a collaborative practice environment in time.

According to Devereux (1981a), "Primary nursing's value was that it allows everyone dealing with the patient to coordinate care with *one* nurse" (p. 20). This statement implies that identification of the nurse responsible for an individual patient's care was difficult due to the myriad of nurses providing care in the team environment. The current professional-technical staffing mix in the AF consists of professional nurses providing direct patient care and coordinating the delivery of care by medical technicians. The nurses are readily identifiable due to their rank, as nurses are officers, while medical technicians are enlisted personnel. Additionally, the traditional arrangement in most

civilian institutions, has a large number of non-staff physicians with admission and treatment privileges, with variable rates of interaction with the facility's nurses. The AF physicians are staff physicians, assigned to the facility, and are known to the nurses, and vice versa. In light of this situation, implementation of the other factors shown to foster a collaborative practice environment, could be undertaken without the initiation of primary nursing.

The study also found a statistically significant difference in the levels of assertiveness and cooperativeness between the physician and nurse groups. Assertiveness and cooperativeness are the two essential elements of collaboration (Coeling & Wilcox, 1991; Johnson, 1992; Kilmann & Thomas, 1977; Ruble & Thomas, 1976; Trueman, 1991). The study revealed that nurses scored higher on assertiveness ($M = 34.3$, $sd = 8.8$, $t = 4.14$, $p < .001$) and cooperativeness ($M = 39.6$, $sd = 9.0$, $t = 2.56$, $p = .011$) than their physician colleagues ($M = 29.8$, $sd = 7.8$; $M = 36.6$, $sd = 9.5$). That a difference would exist between the two groups was not unexpected by the researcher, but the direction of the differences was unanticipated. Based on the literature, nurses were expected to score higher on cooperativeness than physicians but, physicians were expected to score higher on assertiveness. Since the majority of physicians in the AF, as well as in civilian practice continue to be male, and nursing remains a female dominated profession, it was expected that physicians would be more assertive than nurses.

According to Spence and Helmreich (as cited in Katzman & Roberts, 1988) males

are generally more assertive than females. "The stereotypical behavior prescribed for males include dominance, aggressiveness, and authoritarianism, while the behavior for females include subservience, passivity, and powerlessness" (p. 577). Bradford states,

In order to collaborate the nurse must be assertive and confident in her communication with the physician. The majority of our nurses have not been educated in assertive communication styles. Also, since the majority are females, and socially females have been acculturated into the dependent role, it is uncomfortable for some to change this pattern when dealing with male physicians. On the other hand, physicians are accustomed to an aggressive communication style, developed socially and fostered by the method of education of medical students and residents (p. 72K).

The current study's findings on the assertiveness and cooperativeness scores were also inconsistent with those found by Jones (1991). According to her study, there was no significant difference between nurse and physician scores on the Collaborative Practice Scale. What accounts for the differences in the two studies is unclear. However, the differences between the two studies may be due to sample size, $N = 121$ for Jones' study, $N = 282$ for the AF study, the larger number of male nurses and female physicians in the AF study, and/or variations in the demographic characteristics of the participants in the studies, addressed under the second research question.

Research question two. The second question posed in this study related to the impact of eight demographic characteristics on assertiveness and cooperativeness in the two groups. The eight characteristics were (a) age, (b) rank, (c) length of time on active duty, (d) area of practice, (e) position, (f) educational level, and (g) gender, and (h) MTF type.

A strong positive correlation was found between assertiveness and cooperativeness for the total sample ($r = .7611$; $N = 254$; $p < .001$), indicating that as assertiveness increased cooperativeness also increased. Significant positive correlations were also found between assertiveness and educational level ($r = .2616$; $N = 260$; $p < .001$), indicating that as the level of education increased, assertiveness moved unidirectionally with education. Cooperativeness was positively correlated with both length of time on active duty ($r = .1708$; $N = 253$; $p = .006$), and education ($r = .1661$; $N = 260$; $p = .007$). While the correlation between cooperativeness and education may be statistically significant, the weakness of the correlation may render it useless.

Weiss and Davis (1985) found a positive correlation between the educational level of nurses and assertiveness. According to their findings, nurses with a baccalaureate degree (BSN) or higher in nursing ($n = 73$) had a higher mean score on assertiveness ($M = 21.2$), than nurses with associate degrees (ADNs) or diplomas ($n = 20$; $M = 20$; $t = 2.10$; $df = 91$; $p < .04$). The higher level of assertiveness in the nurses in the current study may reflect this relationship. The educational level requirement for nurses entering

the AF is at the baccalaureate level or higher. While this requirement can be waived in certain practice areas when critical shortages exist, the educational level of the sample is the generally accepted norm. The AF sample ($N = 170$) reported 98.2% of nurses with baccalaureate or higher degrees, and 1.1% with diplomas in nursing (ADNs are not commissioned as nurses into the AF). However, Jones (1991) found "There were no statistically significant relationships between the demographic variables and concerns [assertiveness and cooperativeness scores] for nurses or physicians" (p. 137). It should be noted that in Jones' sample of nurses ($n = 57$), 21% were diploma nurses, 25% ADNs, 40% had BSNs, and 14% had masters degrees in nursing (MSN).

No correlation was reported between assertiveness or cooperativeness and education for physician respondents by Weiss and Davis (1985). Their sample of physicians ($n = 94$) was randomly selected from physicians affiliated with a "major health sciences center in a western metropolitan area" (p. 300). The sample was reported as being composed of 80% clinicians. The designation clinician was not defined as to educational level or practice area, nor was the remaining 20% identified as to education, practice area, or position.

The level of assertiveness for the physician group in the current study may also be reflected in the educational level of the sample. The AF sample ($n = 110$) consisted of 17.3% who reported their highest educational level as completion of medical school, 9.1% had completed an internship, 57.3% a residency program, 11.8% a fellowship, and 2.7%

reported completion of a post-medical degree. The 26.4% with less than a residency may be less assertive than those with higher medical education, thereby lowering the mean.

In light of the strong positive correlation between assertiveness and cooperativeness, the same explanations for the relationship between education and assertiveness may be applicable to cooperativeness. Assertiveness can be generally described as self-confidence or self-assurance. It is reasonable to assume that individuals who are self confident in their professional role would be more willing to share their expertise and opinions with others on a collegial basis. Bradford (1989) writes that individuals who are more self-confident are more likely to be cooperative, whether they are nurses or physicians.

Length of time on active duty was also positively correlated with cooperativeness ($r = .1679$; $N = 258$; $p = .008$). Again, while the correlation between cooperativeness and length of time on active duty may be statistically significant; the correlation is weak and may have little, if any, practical importance. In the AF length of time on active duty is both indicative of increased experience and professional growth. Alt-White et al. (1983) state "With greater experience generally comes more skill and confidence" (p. 9). The authors hypothesized a greater level of collaboration with an increase in experience. This may in part account for the correlation found.

The TRA (Ajzen & Fishbein, 1980) may also offer some insight into the impact of the demographic characteristics on collaborative practice scores of both groups. Attitude

determinants and subjective norms are precursors, according to the theory, to behavior.

Role definition or behavior, according to Catalano (1996) begins for nurses in the student environment. The role becomes further defined as the nurse enters and matures in professional practice. The same can be said of physicians. According to Keddy, et al. (1986),

Some of the role behaviours [sic] learned by doctors and nurses are first encountered in their training periods. The role models that each student in both professions have observed influence the behaviours [sic] the students emulate and the attitudes they acquire. What each profession is taught about the other – that is, role expectations, place in the hierarchy and duties – affects the doctor-nurse relationship and interactions and reflects the sex and class distinctions of the society (p. 750).

Organizational culture also has a significant impact on the attitudes and therefore the behaviors of personnel (Peters & Waterman, 1982). Individuals develop their “cultural patterns” (Juran, 1989, p. 299) or behaviors in order to deal with the organizational culture or environment. Therefore, collaborative practice would be influenced by both educational and organizational experiences.

ANOVAs were used to identify differences in assertiveness and cooperativeness between the groups due to demographic characteristics. No significant differences were found in assertiveness and cooperativeness in the physician sample related to position or

areas of practice. A significant difference was found in the level of assertiveness in both variables for the nurse participants. Nurses in administrative positions were more assertive than those in the positions of staff nurse, health promotions, nurse managers, nurse supervisors, and nurses in other, unspecified positions ($F = 2.499$; $df = 6, 54$; $p = .0246$). Weiss and Davis (1985) found nurse administrators scored higher on the combined collaborative practice score than nurses in clinical practice, education, and staff positions. However, in the current study, the AF administrators scored higher than nurses in other positions only on assertiveness. Why this same pattern of results found by Weiss and Davis did not appear with the AF nurse administrators is unknown.

Differences in assertiveness were also found among nurses in managed care, emergency services, critical care, obstetrics, and surgery. All were significantly more assertive than operating room nurses ($F = 2.099$; $df = 10, 151$; $p = .0277$). These findings may be due to levels of education, as the operating room is one of the few practice areas in the AF where diploma nurses are found. The level of autonomy found in the operating room may also have impacted the findings. Alexander, et al. (1982) found that nurses' autonomy, as represented by decision-making power, was increased in units where the number of patients cared for were smaller, "particularly in more critical care environments such as surgical and special care units" (p. 51). Alt-White, et al. (1983) reported a higher level of collaboration in nurses in critical care adult units. They attribute their findings to the increased interaction between physicians and nurses due to the acuity level of patients.

These findings may, in part, explain the higher level of assertiveness found in the areas of practice, other than surgery, of AF nurses.

As previously mentioned, the researcher expected to find nurses scoring higher on cooperativeness, but lower on assertiveness than physicians. This would have been consistent with the writings of Spence and Helmreich (as cited in Katzman & Roberts, 1988) and Bradford (1989), as well as other authors who have studied the gender factor as it relates to role interaction between nurses and physicians (Bates, 1970; Heenan, 1990; Katzman & Roberts, 1988; Keddy, Jones, Jacobs, Burton, & Rogers, 1986). These writers lined their findings to the predominance of women in nursing and men in medicine, and concluded that nurses are less assertive than physician due to both gender and role socialization. Weiss and Davis (1985) found female physicians ($n = 14$) scored higher on cooperativeness ($M = 24.1$) than male physicians ($n = 75$, $M = 20$, $t = 2.69$, $df = 87$, $p < .008$). This lead the researcher to expect that not only would nurses be less assertive and more cooperative than physicians, but all women in the study would be less assertive, as well as more cooperative.

However, when t-tests were run in this study to examine the relationship of gender to the dependent variables within each group, no significant difference was found. The results showed no significant difference between male and female physicians nor between male and female nurses on either assertiveness or cooperativeness. A t-test was then run relating gender, regardless of profession, to the dependent variables. The results showed

that as a group (disregarding profession) women in the AF sample ($n = 138$) were not only more cooperative ($M = 31.1$, $sd = 8.9$) than men ($M = 36.9$, $sd = 9.4$, $n = 123$, $t = -2.94$, $df = 259$, $p = .004$) but, also more assertive ($M = 33.7$, $sd = 8.9$, $n = 141$) than their male colleagues ($M = 31.1$, $sd = 8.9$, $n = 138$, $t = 2.47$, $df = 259$, $p = .014$). In an attempt to determine what might have influenced these findings, a two way analysis of variance was conducted with gender and professional group as the independent variables and assertiveness and cooperativeness as the dependent variables. No significant interaction was found.

Why females in the AF sample were both more assertive and cooperative than males, regardless of their profession is unclear. However, the answer may be in the unique organizational culture of the AFMS. The rank structure and associated chain of command, or authority, may have a major impact on the assertiveness level of women in the AF sample. Further research would be required to draw a more definitive conclusion.

Conclusions

Collaborative practice has been defined by Weiss and Davis (1985) as "...interactions between nurse and physician that enable the knowledge and skills of both professions to synergistically influence the patient care being provided" (p. 299). It is characterized by: (a) Increased nurse-physician understanding of professional roles; (b) mutual trust; (c) increased nurse autonomy and decision making; (d) facilitation of

synergistic, patient focused care through shared planning, decision making, problem solving, and responsibility/accountability for patient outcomes; and (e) improved physician-nurse communication (Baggs & Schmitt, 1988; Bradford, 1989; Burchell, et al., 1983; Lamb & Napodano, 1984; Norsen, Opladen, & Quinn, 1995; Reinke, et al., 1992).

The level of collaborative practice can be measured using the scores of aggregates in the areas of assertiveness and cooperativeness with Jones' (1991) modified version of the Weiss and Davis (1985) Collaborative Practice Scales. The resulting scores can then be plotted to determine the aggregates overall practice behavior in relation to collaboration. Using Jones' scoring methodology, a score between 44 and 60 on the cooperativeness subscale plus a score between 39 and 54 on the assertiveness subscale indicates collaboration.

This study found a mean cooperativeness score of 39.6 plus an assertiveness score of 34.3 for the nurse group and a mean cooperativeness score of 36.6 plus an assertiveness score of 29.8 for the physicians. Neither group scored high enough to be identified as collaborative in their relationship with the other. Based on these finding, it can be concluded that collaborative practice does not currently exist in the AFMS. Rather, a environment of compromise in the relationship between nursing and medical practice exists in the delivery of patient care. Kilmann and Thomas (1977) define collaboration as a problem solving approach that seeks to maximize the satisfaction level of the involved parties as it relates to the agreed upon solution. The concept of collaboration implies that

all solutions are reached by consensus, with all parties having equal input, and the final solution being equally satisfying. Compromise, on the other hand, which is defined by the authors as being midway to collaboration, implies that some or all of the parties forgo some measure of satisfaction in order to come to a decision. Therefore, problem resolution by collaboration would be fully supported by those involved and desired outcome is more likely. On the other hand, problem resolution by compromise may not be supported by those left unsatisfied by the solution. In this situation, those who do not support the solution, but by virtue of being included in the process are essential to its success, may knowingly or unknowingly sabotage the outcome.

Correlations using Pearson's r examined the relationship between the dependent variables of assertiveness and cooperativeness and several independent demographic variables. Results identified a positive correlation between educational level and both dependent variables, as well as between cooperativeness and length of time on active duty.

These findings lead this researcher to conclude that higher educational levels have a positive influence on the development of a collaborative practice environment. Additionally, the longer an individual serves on active duty, the more cooperative the relationship with his/her physician or nurse counterpart becomes.

Internal group analyses of relationships between the dependent variables and independent demographic variables revealed certain nurse positions and practice areas are correlated with assertiveness. Based on these findings, either nurses who are inherently

more assertive seek out positions of an administrative nature and practice areas that are considered more autonomous, or these positions and practice areas foster assertiveness. Which is the definite answer could not be determined.

The study also found that women in the sample were significantly more assertive, as well as more cooperative than men in the study. These data were unrelated to the professions of the respondents. The reason for the findings differing from those found in the literature is unclear, however differences in organizational culture between civilian and AF facilities may hold the answer.

Implications for Practice

The purpose of this research was to determine to what extent active duty AF nurses and physicians perceived collaborative practice to exist in the current peacetime AF health care setting. Additionally, the study explored the effects of specific demographic characteristics on the reported level of collaboration. The results, which found AF nurses and physicians to be in a practice environment based on compromise, provide information on the current relationship between nurses and physicians in the AF health care system.

This information can be used to develop educational efforts to increase collaboration between nurses and physicians, as well as other members of the health care team. These educational efforts need to not only provide information about the benefits of

collaboration, but also provide training in methods that have been shown to increase collaborative practice.

The same instruments used in this study can then be used on a routine basis to assess the effect of efforts to facilitate a collaborative practice environment in the AFMS. The results of ongoing assessments of professional practice can be used in conjunction with measures of cost effectiveness, quality of patient outcomes, and stakeholder satisfaction levels to measure the improvement of the delivery of health care to AF beneficiaries.

Recommendations for Further Research

Several questions related to further research in the area of collaborative practice emerged from this study. The first that should be investigated is the definition of collaborative practice by both AF nurses and physicians. Replication of Tennaro's (1993) research that compared literature definitions of collaborative practice to civilian physicians' understanding and definition of the concept should be conducted with both AF nurses and physicians. This will help determine any disparities in how each profession defines the concept and highlight any required education prior to further evaluation of the level of collaborative practice perceived by nurses and physicians in the AF. In reality, this assessment should have preceded the measurement of perceptions of collaborative practice conducted in AF study. Differing definitions of the concept may have influenced the

results of the current study.

Further investigation is also indicated in the relationship between education and collaboration. Although Weiss and Davis (1985) found a positive correlation between the educational levels of nurses and collaboration, what impact educational level has on physician collaborative behavior is unclear. Findings may indicate whether Hoekelman's (as cited in Keddy, et al., 1986) suggestion that educational efforts with student nurses and medical students will increase collaboration, is warranted.

Another area of research would involve studies to compare the AF findings to other health care systems. This could entail replication of the AF study in the military services, as well as other government agencies, and civilian institutions. This area of research would highlight any system with strong indicators of collaborative practice and allow adaptation of successful efforts to the other systems. Longitudinal studies that track efforts to improve collaboration and the results of cost, quality, and satisfaction indicators would add to the current knowledge base, highlighting those methods found most effective.

The findings related to gender and the dependent variables are intriguing and deserve further study. These studies could be conducted in several ways. A comparative study between military and civilian nurses and physicians examining the gender impact on collaborative behavior, controlled for extraneous variables, is one possible method. A second study design would be longitudinal in nature, measuring the level of collaboration

of both men and women in nursing and medicine when they enter the AF and following those same individuals throughout their AF careers. A third possible method of study would combine elements of the other two. This design would involve a longitudinal comparative study of the collaborative behavior of men and women entering both nursing and medicine in the AF and civilian practice.

APPENDIX A
MODIFIED COLLABORATIVE PRACTICE SCALES

Nurse Collaborative Practice Scale

The following items represent statements about your practice in nursing. Please respond to each item by circling the number for the response that best describes your behavior. If you choose numbers to the left, you indicate that you never, or seldom behave in the manner described. If you choose numbers to the right, you indicate that you frequently, or always behave in the manner described. For example, if you always behave as the first item describes, you would circle 6.

1. I ask physicians about their expectations regarding the degree of my involvement in health care decisions.

1	2	3	4	5	6
Never					Always

2. I negotiate with the physician to establish our responsibilities for discussing different kinds of information with patients.

1	2	3	4	5	6
Never					Always

3. I clarify the scope of my professional expertise when it is greater than the physician thinks it is.

1	2	3	4	5	6
Never					Always

4. I discuss with the physicians the degree to which I want to be involved in planning aspects of patient care.

1	2	3	4	5	6
Never					Always

5. I suggest to physicians patient care approaches that I think would be useful.

1	2	3	4	5	6
Never					Always

6. I discuss with physicians areas of practice that reside more within the realm of nursing than medicine.

1	2	3	4	5	6
Never					Always

7. I tell physicians when, in my judgment, their orders are inappropriate.

1	2	3	4	5	6
Never					Always

8. I tell physicians of any difficulties I foresee in the patient's ability to deal with treatment options and their consequences.

1	2	3	4	5	6
Never					Always

9. I inform physicians about areas of practice that are unique to nursing.

1	2	3	4	5	6
Never					Always

10. I reinforce the value of medical care when talking to the patient.

1	2	3	4	5	6
Never					Always

11. I ask for the physician's assessment of what may be needed to strengthen the patient's support system.

1	2	3	4	5	6
Never					Always

12. I discuss with physicians the similarities and differences in nursing and medical approaches to care.

1	2	3	4	5	6
Never					Always

13. I consider physicians' opinions when developing a treatment plan.

1	2	3	4	5	6
Never					Always

14. I discuss areas of agreement and disagreement with physicians in an effort to develop mutually agreeable health care goals.

1	2	3	4	5	6
Never					Always

15. I discuss with physicians the degree to which I think they should be involved in planning and implementing aspects of patient care.

1	2	3	4	5	6
Never					Always

16. I work toward consensus with physicians regarding the best approach in caring for a patient.

1	2	3	4	5	6
Never					Always

17. I discuss with physicians their expectations regarding the degree of their involvement in the health care decision-making process.

1	2	3	4	5	6
Never					Always

18. I acknowledge to physicians those aspects of health care where they have more expertise than I do.

1	2	3	4	5	6
Never					Always

19. I clarify whether the physician or I will have the responsibility for discussing different kinds of information with patients.

1	2	3	4	5	6
Never					Always

Jones, R. A. (1991). Nurse-Physician Collaboration and Outcomes of Care (Doctoral dissertation, Indiana University, 1991). Ann Arbor, MI: University Microfilm International.

Physician Collaborative Practice Scale

The following items represent statements about your practice in medicine. Please respond to each item by circling the number for the response that best describes your behavior. If you choose numbers to the left, you indicate that you never, or seldom behave in the manner described. If you choose numbers to the right, you indicate that you frequently, or always behave in the manner described. For example, if you always behave as the first item describes, you would circle 6.

1. I ask nurses about their expectations regarding the degree of my involvement in health care decisions.

1	2	3	4	5	6
Never					Always

2. I negotiate with the nurse to establish our responsibilities for discussing different kinds of information with patients.

1	2	3	4	5	6
Never					Always

3. I clarify the scope of my professional expertise when it is greater than the nurse thinks it is.

1	2	3	4	5	6
Never					Always

4. I discuss with the nurses the degree to which I want to be involved in planning aspects of patient care.

1	2	3	4	5	6
Never					Always

5. I suggest to nurses patient care approaches that I think would be useful.

1	2	3	4	5	6
Never					Always

6. I discuss with nurses areas of practice that reside more within the realm of medicine than nursing.

1	2	3	4	5	6
Never					Always

7. I tell nurses when, in my judgment, their interventions seem inappropriate.

1	2	3	4	5	6
Never					Always

8. I tell nurses of any difficulties I foresee in the patient's ability to deal with treatment options and their consequences.

1	2	3	4	5	6
Never					Always

9. I inform nurses about areas of practice that are unique to medicine.

1	2	3	4	5	6
Never					Always

10. I reinforce the value of nursing care when talking to the patient.

1	2	3	4	5	6
Never					Always

11. I ask for the nurse's assessment of what may be needed to strengthen the patient's support system.

1	2	3	4	5	6
Never					Always

12. I discuss with nurses the similarities and differences in medical and nursing approaches to care.

1	2	3	4	5	6
Never					Always

13. I consider nurses' opinions when developing a treatment plan.

1	2	3	4	5	6
Never					Always

14. I discuss areas of agreement and disagreement with nurses in an effort to develop mutually agreeable health care goals.

1	2	3	4	5	6
Never					Always

15. I discuss with nurses the degree to which I think they should be involved in planning and implementing aspects of patient care.

1	2	3	4	5	6
Never					Always

16. I work toward consensus with nurses regarding the best approach in caring for a patient.

1	2	3	4	5	6
Never					Always

17. I discuss with nurses their expectations regarding the degree of their involvement in the health care decision-making process.

1	2	3	4	5	6
Never					Always

18. I acknowledge to nurses those aspects of health care where they have more expertise than I do.

1	2	3	4	5	6
Never					Always

19. I clarify whether the nurse or I will have the responsibility for discussing different kinds of information with patients.

1	2	3	4	5	6
Never					Always

Jones, R. A. (1991). Nurse-Physician Collaboration and Outcomes of Care (Doctoral dissertation, Indiana University, 1991). Ann Arbor, MI: University Microfilm International.

APPENDIX B
COLLABORATIVE PRACTICE SCALES

Nurse Collaborative Practice Scale

The following items represent statements about your practice in nursing. Please respond to each item by circling the number for the response that best describes your behavior. If you choose numbers to the left, you indicate that you never, or seldom behave in the manner described. If you choose numbers to the right, you indicate that you frequently, or always behave in the manner described. For example, if you always behave as the first item describes, you would circle 6.

1. I ask physicians about their expectations regarding the degree of my involvement in health care decisions.

1	2	3	4	5	6
Never					Always

2. I negotiate with the physician to establish our responsibilities for discussing different kinds of information with patients.

1	2	3	4	5	6
Never					Always

3. I clarify the scope of my professional expertise when it is greater than the physician thinks it is.

1	2	3	4	5	6
Never					Always

4. I discuss with the physicians the degree to which I want to be involved in planning aspects of patient care.

1	2	3	4	5	6
Never					Always

5. I suggest to physicians patient care approaches that I think would be useful.

1	2	3	4	5	6
Never					Always

6. I discuss with physicians areas of practice that reside more within the realm of nursing than medicine.

1	2	3	4	5	6
Never					Always

7. I tell physicians when, in my judgment, their orders are inappropriate.

1	2	3	4	5	6
Never					Always

8. I tell physicians of any difficulties I foresee in the patient's ability to deal with treatment options and their consequences.

1	2	3	4	5	6
Never					Always

9. I inform physicians about areas of practice that are unique to nursing.

1	2	3	4	5	6
Never					Always

Weiss, A. J. & Davis, H. P. (1985). Validity and reliability of the Collaborative Practice Scales.

Nursing Research, 34, 299-305.

Physician Collaborative Practice Scale

The following items represent statements about your practice in medicine. Please respond to each item by circling the number for the response that best describes your behavior. If you choose numbers to the left, you indicate that you never, or seldom behave in the manner described. If you choose numbers to the right, you indicate that you frequently, or always behave in the manner described. For example, if you always behave as the first item describes, you would circle 6.

1. I reinforce the value of nursing care when talking to the patient.

1	2	3	4	5	6
Never					Always

2. I ask for the nurse's assessment of what may be needed to strengthen the patient's support system.

1	2	3	4	5	6
Never					Always

3. I discuss with nurses the similarities and differences in medical and nursing approaches to care.

1	2	3	4	5	6
Never					Always

4. I consider nurses' opinions when developing a treatment plan.

1	2	3	4	5	6
Never					Always

5. I discuss areas of agreement and disagreement with nurses in an effort to develop mutually agreeable health care goals.

1	2	3	4	5	6
Never					Always

6. I discuss with nurses the degree to which I think they should be involved in planning and implementing aspects of patient care.

1	2	3	4	5	6
Never					Always

7. I work toward consensus with nurses regarding the best approach in caring for a patient.

1	2	3	4	5	6
Never					Always

8. I discuss with nurses their expectations regarding the degree of their involvement in the health care decision-making process.

1	2	3	4	5	6
Never					Always

9. I acknowledge to nurses those aspects of health care where they have more expertise than I do.

1	2	3	4	5	6
Never					Always

10. I clarify whether the nurse or I will have the responsibility for discussing different kinds of information with patients.

1	2	3	4	5	6
Never					Always

Weiss, A. J. & Davis, H. P. (1985). Validity and reliability of the Collaborative Practice Scales.

Nursing Research, 34, 299-305.

APPENDIX C

LETTER OF PERMISSION- WEISS

Subj: Collaborative Practice Scales
Date: 96-10-23 17:08:12 EDT
From: Sandra.Weiss@ucop.edu (Sandra Weiss)
To: sgpolk@aol.com

You have my permission, Susan, to use these scales. I ask only that you send me a summary of your findings when the study has been completed. I presume you have the Scales. If not, let me know and I will send you a copy of them, along with the scoring instructions. Good luck.

----- Headers -----

From Sandra.Weiss@ucop.edu Wed Oct 23 17:07:35 1996
Return-Path: Sandra.Weiss@ucop.edu
Received: from ernie.ucop.edu (ernie.ucop.edu [128.48.141.1]) by emin20.mail.aol.com (8.6.12/8.6.12) with ESMTP id RAA21045 for <sgpolk@aol.com>; Wed, 23 Oct 1996 17:07:30 -0400
Received: from enfronte (enfronte.ucop.edu [128.48.122.181]) by ernie.ucop.edu (8.7.4/8.7.3) with SMTP id OAA13056 for <sgpolk@aol.com>; Wed, 23 Oct 1996 14:07:27 -0700
Date: Wed, 23 Oct 1996 14:07:27 -0700
Message-Id: <199610232107.OAA13056@ernie.ucop.edu>
X-Sender: sweiss@popserv.ucop.edu
X-Mailer: Windows Eudora Pro Version 2.1.2
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"
To: sgpolk@aol.com
From: Sandra Weiss <Sandra.Weiss@ucop.edu>
Subject: Collaborative Practice Scales

APPENDIX D

LETTER OF PERMISSION-JONES

Department of Nursing & Health Sciences
6300 Ocean Drive
Faculty Center 151
Corpus Christi, TX 78412
(512)994-2648/2649

Texas A&M University-
Corpus Christi

Fax

To: Susan G. Polk	From: Rebecca A. Jonas, DNS, RN
Fax: (913)682-6749	Pages: 1
Phone: (913)758-0145	Date: October 10, 1996
Re: Master's Thesis Research	CC:

☐ Urgent ☐ For Review ☐ Please Comment ☐ Please Reply ☐ Please Recycle

• Comments:

Ms. Polk:

You have permission to use the tool and scoring method for your research. You also need to seek the permission from the original author of the tool as I used a revised version. I would be interested in receiving a summation of your data.

*Rebecca A. Jonas, DNS, RN, CNA
Director & Associate Professor*

APPENDIX E
SURVEY TOOLS

Nurse Collaborative Practice Scale

The following items represent statements about your practice in nursing. Please respond to each item by circling the number for the response that best describes your behavior. If you choose numbers to the left, you indicate that you never, or seldom behave in the manner described. If you choose numbers to the right, you indicate that you frequently, or always behave in the manner described. For example, if you always behave as the first item describes, you would circle 6.

1. I ask physicians about their expectations regarding the degree of my involvement in health care decisions.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

2. I negotiate with the physician to establish our responsibilities for discussing different kinds of information with patients.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

3. I clarify the scope of my professional expertise when it is greater than the physician thinks it is.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

4. I discuss with the physicians the degree to which I want to be involved in planning aspects of patient care.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

5. I suggest to physicians patient care approaches that I think would be useful.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

6. I discuss with physicians areas of practice that reside more within the realm of nursing than medicine.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

7. I tell physicians when, in my judgment, their orders are inappropriate.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

8. I tell physicians of any difficulties I foresee in the patient's ability to deal with treatment options and their consequences.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

9. I inform physicians about areas of practice that are unique to nursing.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

10. I reinforce the value of medical care when talking to the patient.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

11. I ask for the physician's assessment of what may be needed to strengthen the patient's support system.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

12. I discuss with physicians the similarities and differences in nursing and medical approaches to care.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

13. I consider physicians' opinions when developing a treatment plan.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

14. I discuss areas of agreement and disagreement with physicians in an effort to develop mutually agreeable health care goals.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

15. I discuss with physicians the degree to which I think they should be involved in planning and implementing aspects of patient care.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

16. I work toward consensus with physicians regarding the best approach in caring for a patient.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

17. I discuss with physicians their expectations regarding the degree of their involvement in the health care decision-making process.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

18. I acknowledge to physicians those aspects of health care where they have more expertise than I do.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

19. I clarify whether the physician or I will have the responsibility for discussing different kinds of information with patients.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

Jones, R. A. (1991). Nurse-Physician Collaboration and Outcomes of Care (Doctoral dissertation, Indiana

University, 1991). Ann Arbor, MI: University Microfilm International.

Weiss, A. J. & Davis, H. P. (1985). Validity and reliability of the Collaborative Practice Scales.

Nursing Research, 34, 299-305.

Physician Collaborative Practice Scale

The following items represent statements about your practice in medicine. Please respond to each item by circling the number for the response that best describes your behavior. If you choose numbers to the left, you indicate that you never, or seldom behave in the manner described. If you choose numbers to the right, you indicate that you frequently, or always behave in the manner described. For example, if you always behave as the first item describes, you would circle 6.

1. I ask nurses about their expectations regarding the degree of my involvement in health care decisions.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

2. I negotiate with the nurse to establish our responsibilities for discussing different kinds of information with patients.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

3. I clarify the scope of my professional expertise when it is greater than the nurse thinks it is.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

4. I discuss with the nurses the degree to which I want to be involved in planning aspects of patient care.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

5. I suggest to nurses patient care approaches that I think would be useful.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

6. I discuss with nurses areas of practice that reside more within the realm of medicine than nursing.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

7. I tell nurses when, in my judgment, their interventions seem inappropriate.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

8. I tell nurses of any difficulties I foresee in the patient's ability to deal with treatment options and their consequences.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

9. I inform nurses about areas of practice that are unique to medicine.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

10. I reinforce the value of nursing care when talking to the patient.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

11. I ask for the nurse's assessment of what may be needed to strengthen the patient's support system.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

12. I discuss with nurses the similarities and differences in medical and nursing approaches to care.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

13. I consider nurses' opinions when developing a treatment plan.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

14. I discuss areas of agreement and disagreement with nurses in an effort to develop mutually agreeable health care goals.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

15. I discuss with nurses the degree to which I think they should be involved in planning and implementing aspects of patient care.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

16. I work toward consensus with nurses regarding the best approach in caring for a patient.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

17. I discuss with nurses their expectations regarding the degree of their involvement in the health care decision-making process.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

18. I acknowledge to nurses those aspects of health care where they have more expertise than I do.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

19. I clarify whether the nurse or I will have the responsibility for discussing different kinds of information with patients.

1	2	3	4	5	6
Never	Rarely	Occasionally	Frequently	Almost Always	Always

Jones, R. A. (1991). Nurse-Physician Collaboration and Outcomes of Care (Doctoral dissertation, Indiana

University, 1991). Ann Arbor, MI: University Microfilm International.

Weiss, A. J. & Davis, H. P. (1985). Validity and reliability of the Collaborative Practice Scales.

Nursing Research, 34, 299-305.

APPENDIX F
DEMOGRAPHIC DATA COLLECTION TOOLS

Nurse Demographics

1. Age _____ 2. Gender Male _____ Female _____ 3. Rank _____

4. Length of time on active duty. _____

5. What is your highest educational level?

_____ Nursing School Diploma

_____ Baccalaureate degree in Nursing or related field

_____ Master's degree in Nursing or related field

_____ Doctoral degree in Nursing or related field

6. What is your present position?

_____ Administration

_____ Staff nurse

_____ Supervisor

_____ Education

_____ Health promotions

_____ Nurse Manager

_____ Other

7. What is your area of practice?

_____ medical

_____ surgical

_____ psychiatric

_____ pediatric

_____ operating room

_____ obstetrics/gynecology

_____ critical care

_____ emergency room

_____ family practice

_____ primary care

_____ managed care

_____ other

8. What type of facility is your current MTF?

_____ Clinic

_____ Hospital

_____ Regional Hospital

_____ Medical Center

Physician Demographics

1. Age _____ 2. Gender Male _____ Female _____ 3. Rank _____

4. Length of time on active duty _____

5. What is your highest educational level?

_____ Medical School	_____ Fellowship
_____ Internship	_____ Post medical or other academic degree
_____ Residency	_____ Other

6. What is your present position?

_____ Intern	_____ Resident	_____ Staff physician
_____ Administrative	_____ Fellow	_____ Service Chief _____ Other

7. What is your area of practice?

_____ internal medicine	_____ orthopedics	_____ psychiatry
_____ pediatrics	_____ surgery	_____ obstetrics
_____ gynecology	_____ urology	_____ emergency room
_____ family practice	_____ primary care	_____ ophthalmology
_____ aerospace medicine	_____ other	

8. What type of facility is your current MTF?

_____ Clinic _____ Hospital _____ Regional Hospital _____ Medical Center

APPENDIX G

AIR FORCE LETTER OF APPROVAL



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE PERSONNEL CENTER
RANDOLPH AIR FORCE BASE TEXAS

MEMORANDUM FOR MAJ POLK

29 OCT 1996

FROM: AFPC/DPSAS
550 C Street West, Ste 35
Randolph AFB, TX 78150-4737

SUBJECT: Air Force Health Care Collaborative Practice Survey (You Ltr 1 Oct 96)

Your proposed survey of active duty health care providers is approved and assigned a survey control number of USAF SCN 96-72. This control number expires on 31 May 97. Please be advised the survey results from your study can be obtained by the public through the Freedom of Information Act. Questions regarding this approval action can be directed to me at DSN 487-5680.

A handwritten signature in dark ink, appearing to read "Blair W. Conroy", is positioned above the typed name.

BLAIR W. CONROY, Capt, USAF
Survey Analyst

APPENDIX H

SOCIAL SCIENCES INSTITUTION REVIEW BOARD LETTER OF APPROVAL

Research Administration

University of Missouri-Kansas City
5100 Rockhill Road
Kansas City, Missouri 64110-2499



February 19, 1997

Major Susan G. Polk
4018 Tenth Avenue
Leavenworth, KS 66048

**Institutional Review
Boards**

Health Sciences
Professor Adele Eberhart,
Chairman
c/o Ms. Virginia Mashburn
TMC, 2301 Holmes
Kansas City, Missouri
64108-2792
816 556-5203

Social Sciences
Dr. Hans Uffelman,
Chairman
222 N Cockeair Hall
5100 Rockhill Road
Kansas City, Missouri
64110-2499
816 235-2813

Dear Major Polk:

Thank you for submitting your revisions for your study proposal, "Nurse-Physician Perceptions of Collaborative Practice in Air Force Medical Treatment Facilities" (Protocol #1410). They fulfill the restrictions requested by the SSIRB.

Therefore, consider this letter as a notification of final approval for your study as revised and you may commence the study. In case you find it necessary to make any procedural and/or substantive changes, you will need to submit them to this committee for review and approval.

I am enclosing a Progress Report Form which must be submitted to this committee at the time of the conclusion of your study but not later than one calendar year from the date of this letter.

On behalf of the SSIRB, I wish you much success with your work. If you have any questions, please feel free to contact me.

Sincerely,


Hans W. Uffelman, Ph.D.
Chair, SSIRB

HWU/ge
Encl.

APPENDIX I
SURVEY PACKET COVER LETTERS

MEMORANDUM FOR: _____/CC

21 February, 1997

FROM: Major Susan G. Polk
4018 Tenth Avenue
Leavenworth, KS 66048

SUBJECT: Survey Permission

I am an AFIT student currently assigned to the University of Missouri, Kansas City, and am requesting permission to administer a survey for my master's thesis at your facility. The survey is being sponsored by HQ AF/SGR and has been assigned a survey control number of USAFSCN 96-72 by HQ AFPC/DPSAS.

Your facility was randomly selected as a survey site from a list of all CONUS MTFs. To facilitate survey completion, I am requesting a POC at your facility to assist in the distribution and collection of survey packets. The packet consists of a cover letter, demographic questionnaire, and 19 question survey. The survey is targeted at active duty nurses and physicians and is designed to measure their perception of the level of collaborative practice in AF MTFs

The survey should only take about 20 minutes of the participant's time. Their responses are guaranteed anonymity, and will be combined with responses from other MTFs. The results of all the surveys will be used to generalize the perception of active duty nurses and physicians to both Corps. Completion and return of the survey is considered consent to participate in the project. Results of the study can be obtained by the public through the Freedom of Information Act.

I am requesting that the participants complete the survey and seal it in the attached envelop before returning it to your facility's designated POC. The role of the POC would be to distribute the enclosed survey packets to active duty nurses and physicians at your facility, collect the completed surveys, and return them to me within 10 duty days of packet receipt. A prepaid envelop is provided to the POC for survey return. In anticipation of your approval, I have enclosed a total of 44 surveys, 22 for nurses and 22 for physicians.

I sincerely appreciate your assistance in the completion of this project. If you have any questions or concerns regarding the survey or its results, please feel free to contact me at E-mail: SGPolk@aol.com or (913) 758-0145.

SUSAN G. POLK, Major, USAF, NC
AFIT/UMKC

Enclosure
POC Cover Letter
Nurse Survey Packet
Physician Survey Packet
Return Envelop

MEMORANDUM FOR: COLLABORATIVE PRACTICE SURVEY POC

FROM: Major Susan G. Polk
4018 Tenth Avenue
Leavenworth, KS 66048

SUBJECT: Survey Administration

Your commander has been kind enough to allow administration of these surveys at your facility. Let me thank you in advance for your help in the distribution and return. I know your time is valuable and I assure you this project will require a minimum investment.

Please distribute the enclosed surveys only to ACTIVE DUTY nurses and physicians. The method used for distribution and collection of the surveys should ensure the participants feel no compulsion to participate in the survey process.

If for any reason, a survey participant has questions or concerns regarding the survey, please assure them that participation is STRICTLY VOLUNTARY, and all responses are guaranteed anonymity. To maintain their anonymity, I have asked that any questions they may have, specific to the nature and use of the survey, be sent to me through you.

Please collect and return the completed surveys to me in the enclosed, pre-paid envelop within 10 duty days of your receipt of the survey packages. I do ask that you contact me upon receipt of this letter at E-mail SGPolk@aol.com, or (913) 758-0145, if E-mail is unavailable, so I know who the POC is for your facility.

Again, let me thank you for your help in the completion of this project. Feel free to contact me if you have any questions.

SUSAN G. POLK, Major, USAF, NC
AFIT/UMKC

MEMORANDUM FOR SURVEY PARTICIPANT

FROM: Major Susan G. Polk
4018 Tenth Avenue
Leavenworth, KS 66048

SUBJECT: Collaborative Practice Survey

I need your help. I am currently an AFIT student at the University of Missouri, Kansas City and am conducting a survey of active duty nurses and physicians for my Master's thesis. The survey is sponsored by HQ AF/SGR and has been assigned a survey control number by HQ AFPC/DPSAS of USAFSCN 96-72. Participation in the survey is strictly voluntary.

The survey should only take about 20 minutes of your time and is designed to measure your perception of the level of collaborative practice in AF MTFs. Your responses are guaranteed anonymity, and will be combined with responses from other MTFs. The results of all the surveys will be used to generalize the perception of active duty nurses and physicians to both Corps.

Please complete the survey and seal it in the attached envelop before returning it to your facility's designated POC. The POC will return all the completed surveys from your facility to me for analysis. Completion and return of the survey is considered consent to participate in the project. Results of the study can be obtained by the public through the Freedom of Information Act.

Thank you for your participation in this project. Your assistance is greatly appreciated. In order to maintain anonymity, if you have any questions or concerns regarding the survey or its results, please direct them to your designated POC, who can contact me for clarification.

SUSAN G. POLK, Major, USAF, NC
AFIT/UMKC

Attachment
Collaborative Practice Survey Packet

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VITA

Susan G. Polk was born on August 10, 1953, at M^cConnell Air Force Base, Kansas. The oldest daughter of a career non-commissioned officer, she spend her formative years in the United Kingdom, Europe, and the Philippine Islands. She graduated from Satellite Beach High School, Satellite Beach, Florida, in 1971. She was a member of the National Honor Society, and received a Florida Regent's Scholarship upon graduation.

Major Polk attended the University of Massachusetts, Amherst campus, and graduated with a Bachelor of Science in Nursing in 1979. After several years in the Veterans' Affairs health care system she entered the Air Force and was commissioned as a 2nd lieutenant in August, 1982. Major Polk attained the rank of 1st lieutenant in 1984, and captain in 1986.

She completed a Master of Arts in Organizational Management at the University of Phoenix, Albuquerque campus in 1993. She was promoted to her current rank of major in 1994, and selected as one of the first Air Force nurses to attend a dual program for a Master of Science in Nursing and Master of Business Administration.

Major Polk has occupied a variety of positions during her military career including; staff nurse, charge nurse, flight nurse, flight nurse instructor, assistant education officer, and Director, Quality Services. Her assignments have included Texas, Korea, Germany, and New Mexico.

Major Polk is a member of the American Society of Quality Control and the International Nursing Honor Society, Sigma Theta Tau. Her military decorations include, the Meritorious Service Medal, Air Force Commendation Medal with two oak leaf clusters, the Combat Air Crew Medal, Expeditionary Forces Medal, and the National Defense Medal.